The Manitoba Medical Review

Vol. 36 AUGUST-SEPTEMBER, 1956 No. 7

Surgery

The Management of a Large Vesicovaginal Fistula

S. S. Peikoff, M.D., F.R.C.S. (Ed.), F.R.C.S. (C)
F.A.C.S., F.I.C.S.
and
M. B. Wall, M.D.

Vesicovaginal fistula presents a serious problem to the patient and the surgeon. To the patient, the continual dribbling of urine per vaginum with the associated excoriation and irritation of the vulva and inner aspect of the thighs is a constant source of annoyance; while the odor of decomposing urine may well make a social outcast of her. As for the surgeon, the repair of the fistula will tax his ingenuity and patience to prepare the parts for surgery, and to determine the best approach to effect closure of the bladder and vaginal defects taking into consideration the complications which may be present.

The following case illustrates the many features involved and, we believe, presents the general principles of the surgical repair of a vesicovaginal fistula.

From the Department of Surgery, St. Boniface Hospital, St. Boniface, Man.

Case Report

Mrs. M. C., age 30 years, para IV gravida V, was operated on elsewhere for repair of a cystorectocele in February 1955. Immediately following the operation she complained of urinary incontinence, and, when examined two weeks later, was found to have a vesicovaginal fistula. In the next six weeks three surgical attempts were made to close the defect.

Upon admission to the St. Boniface Hospital on April 19, 1955, examination revealed a large fistula which admitted three fingers. The edges of the fistula were very friable and bled readily on the slightest touch. The mucosa of the anterior vaginal wall was edematous, distorted by the repeated attempts to effect a surgical closure, and covered with scattered urinary incrustations. The cervix was distorted by a V shaped defect of the anterior lip, which was probably of surgical origin, while fixation of the cervix produced by the scarring of the tissues from previous operations made it impossible to draw the cervix down to the introitus with firm pull on a tenaculum.

A curved artery forcep has been passed down through the urethra and the tip is shown protruding through the fistula. Note the edema and distortion of the anterior vaginal wall and the excoriation of the vulva.

Cystoscopic examination revealed a large transverse oval opening in the floor of the bladder with ablation of the left portion of the inter-

ureteric ridge and the left ureteric orifice. The right ureteric orifice was identified and a ureteric catheter passed with ease. The distal end of the urethra was distorted, and a considerable portion was missing.

Continuous urinary incontinence was the most distressing feature from the patient's point of view. The thighs were raw and excoriated from the irritation of the uncontrolled urinary flow.

Management of the Case

1. Waiting Period

A pre-operative waiting period of 3-4 months was deemed imperative. During this period every effort was made to reduce the inflammation, oedema and incrustations in bladder mucosa and to clean up the excoriation in the region of vulva and inner aspect of the thighs (vide infra 4).

2. Conservative Attempt of Closure

On April 22, 1955, an indwelling catheter was introduced into the bladder per urethra and the patient placed in the prone position on a Stryker frame for two months. The object was to keep the bladder as dry as possible, and to prevent further irritation to the tissues about the fistulous opening. (Such treatment will reduce the size of large fistulas and often effect closure of smaller ones.)

3. Cystoscopic Examination

The patient was examined under anaesthesia at two week intervals to gauge the progress of healing. At the end of six weeks of treatment, there was some shrinkage in size of the fistulous opening; the edges had lost their edematous and inflamed appearance and had become fibrous in some areas. The left margin of the fistula was adherent to the left ramus of the pubic. The right ureteric orifice was readily identified and catheterized. The left ureteric orifice could not be found in the mass of granulation tissue.

4. Pre-operative Preparation Consisted of:

(a) Hot Sitz baths to clear up the excoriation of the vulva and thighs.

(b) Bladder irrigations with Potassium Permanganate 1: 10,000 solution.

(c) Appropriate antibiotics to reduce bladder infection.

(d) Continuous bladder drainage by means of a urethral catheter attached to a Stedman motor.

(e) Ammonium chloride grs. XV t.i.d. for two days a week to acidify the urine and prevent the formation of alkaline incrustations within the bladder and vagina.

(f) Correction of anemia, avitaminosis, electrolyte and fluid imbalance.

(g) Complete urological investigation; including intravenous pyelogram, blood urea nitrogen, urine culture and determination of antibiotic sensitivity of the organisms.

5. Operative Procedure June 24, 1955

(a) Exposure of the Fistula: The patient was placed in the lithotomy position in moderate Trendelenburg. The labia minora were sutured to the thighs. A paravaginal or Schuchardt's incision was made on the left side extending down between the anus and tuber ischium. The careful placing of retractors permitted adequate exposure of the fistula.

(b) Closure of the Fistula. This was the most tedious and difficult part of the whole procedure. The cervix was lacerated and friable, making it difficult to grasp with a tenaculum. The bladder was freed from the anterior surface of the cervix to relieve the tension on the anterior vaginal wall. Using a curved scissors the vaginal mucosa was incised around the circumference of the fistula. A line of cleavage was found between the bladder and the vaginal mucosa, and, starting at the right side of the fistula, a ½-inch cuff of bladder mucosa and muscle was mobilized by sharp and blunt dissection. There was considerable oozing of blood during this dissection. Along the left border of the fistula the adhesions were found to be fibrous and densely adherent to the left pubic ramus. These were freed by sharp and blunt dissection to mobilize the bladder adjacent to the fistula.

The cuff of bladder mucosa and muscle was inverted by a 000 intestinal catgut suture on an atraumatic needle, care being taken not to go through the mucosa at any point. (The technique is similar to that utilized in closing an intestinal wound so that it is water-tight; the suture line is inverted and under no tension.) A second layer of interrupted Lembert sutures was then placed in the muscular wall of the bladder to reinforce the first layer. This second layer was free of tension.

No attempt was made to close the vaginal mucosa since the defect was too large for easy approximation of the edges. The vagina was packed with gauze and the patient redraped for the abdominal approach.

(c) The Transperitoneal Approach: With the patient in the Trendelenburg position a midline transperitoneal suprapubic incision was made. The left ureter was exposed at the pelvic brim, and it exhibited a moderate degree of hydroureter. An incision 1 cm. in length was made into the ureter permitting the escape of urine under pressure. An attempt to pass a ureteric catheter into the bladder failed because of obstruction at the intravesical portion of the ureter. The ureteric incision was closed with three silk sutures.

The uterus was elevated by a uterine tenaculum, and the vesicouterine peritoneal reflection was divided transversely. The bladder was completely mobilized and separated from the anterior wall of the cervix until the region of the sutured

fistula was exposed and the vaginal vault entered into.

A midline incision was made into the superior wall of the bladder bisecting it down to the point of the suture line closing the fistulous bladder opening. The left ureter was dissected free from the base of the bladder and for two inches proximally. A large artery entering the ureter at this point was preserved. The ureter was transected close to the base of the bladder and the distal end tied off with silk. The proximal end was threaded through an opening made in the avascular area of the left broad ligament and fixed to the lower end of the bladder incision. The bladder incision was closed beginning at the entrance of the newly implanted ureter and working anteriorly towards the apex of the bladder. A mushroom catheter was introduced at the highest point of the incision.

The suture line closing the fistulous opening in the bladder was anchored to the body of the uterus by 2 layers of silk, one above and one below the suture line, so that the body of the uterus now formed a firm floor for the closed fistula. Several interrupted silk sutures were used to attach the broad ligament to the bladder in the region of the uretero-vesical anastomosis. The peritoneum was closed in the anterior cul-de-sac.

A large towel was placed over the celiotomy wound and the patient redraped in the lithotomy position.

(d) Closure of Schuchardt's Incision: An attempt was made to close the gap in the vaginal mucosa created by the fistula, but the span was too great and the defect was left open. As a temporary measure, the cervix was stitched over the vaginal defect to provide a firm base for healing. Schuchardt's incision was closed and the vagina packed with vaseline gauze. A whistle tip catheter was introduced into the urethra and taped to the inner aspect of the right thigh.

(e) Closure of the Abdominal Incision: The abdominal area was redraped. A chromic catgut suture was passed through the bladder muscle layer and anchored to the fascia and rectus abdominus muscle above the pubis. A penrose drain was placed in the cave of Retzius. The mushroom catheter was brought out through the midpoint of the skin incision. The abdomen was closed in layers.

6. Post-operative Care

(a) Considerable blood loss during the operation was corrected by blood transfusions and intravenous fluids at the time.

(b) Antibiotics.

(c) Decompression of the bladder at all times: The mushroom catheter in the bladder and the whistle tipped catheter in the urethra were attached to a Stedman motor providing continuous suction. Nurses and internes were warned that at no time were the tubes to be clamped off, even temporarily, for a period of four weeks, i.e. until such time as the catgut sutures were absorbed and a firm fibrous union had been established. We would like to point out that continuous bladder decompression is the most important feature in the post-operative care.

Bladder irrigations were given every half-hour during the first three post-operative days to prevent blood clots from plugging the catheters. The irrigations were discontinued after the first week.

7. Progress Report:

June 26, 1955, the vaginal pack was removed on the second post-operative day and low pressure potassium permanganate douches started. Oil retention enemas and liquid petrolatum per ora were given to prevent fecal impaction.

June 29, 1955, penrose drains were removed.

July 14, 1955, the whistle tipped ureteral catheter was removed.

July 15, 1955, Methylene Blue was introduced through the suprapubic catheter and showed no leakage of dye into the vagina. The mushroom catheter was removed at this time.

July 28, 1955, intravenous pyelogram showed both kidneys to be functioning normally.

August 9, 1955, discharged from hospital.

August 13, 1955, re-admitted to City Hospital for sterilization proceedings. This was felt to be imperative since pregnancy would result in irreparable damage to the left ureter and bladder.

August 20, 1955, discharged from hospital, completely free of incontinence and with good sphincteric control.

The patient was cautioned to avoid sexual intercourse for a period of three months.

Discussion

The purpose of presenting this case is two-fold.

1. Vesicovaginal fistulas are not common, yet any surgeon or obstetrician may be faced with this tragic and distressing complication.

2. The assessment of the available literature to assist in the treatment of complicated fistulas, since there can be no standardized approach to this problem.

The Causes of Vesicovaginal Fistula are:

1. Obstetrical: Trauma of prolonged labor due to pressure necrosis and sloughing of the bladder wall following prolonged compression of the the bladder between the pubic symphysis and the presenting part[7, 15]. The improvement in obstetrical technique and the earlier application of forceps have reduced this obstetrical complication.

2. Surgical Trauma: This ranks as the main cause of vesicovaginal fistulas today due to the increasing number of pelvic operations performed. Cystocele repairs and total hysterectomies account for the greatest number of vesicovaginal fistulas,

since these procedures place the bladder and ureters in greatest jeopardy.

3. Irradiation of Uterine Carcinoma: The treatment of uterine carcinoma, especially carcinoma of the cervix, by radium therapy has resulted in a number of vesicovaginal fistulas due to the necessity of applying cancerocidal dosage to the region of the base of the bladder[5, 6]. In cases with extension of the cancer into the bladder, the administration of radium therapy has resulted in the affected areas of the bladder sloughing away.

4. Less common causes are necrosis of tissues from prolonged use of pessaries and following cautery of the cervix. Tuberculosis, syphilis, and lymphogranuloma venereum may produce a fistula by extension to the anterior vaginal wall.

The first successful operation for repair of vesicovaginal fistula was reported in the Lancet in 1834 by Montague Gosset of London, England[11]. In this country J. Marion Sims, in 1852 reported a successful closure in Anarcha, a slave girl, after the thirtieth operation. Both surgeons attributed their success to the use of silver wire.

Since the time of Gosset and Sims, the technique for the repair of vesicovaginal fistulas has been improved by the following measures:

(a) A waiting period of four to six months to permit the tissues to heal adequately prior to attempted repair[1, 3, 8]. During this waiting period a number of smaller fistulas will close spontaneously, while large fistulas will decrease in size and permit easier closure[4, 12, 14].

(b) The preparation of the tissues for the repair of the fistula by means of adequate bladder drainage, the use of antiseptic irrigations and antibiotics to reduce infection[8, 10].

(c) A tension relieving incision of the vaginal mucosa to permit exposure of the fistulous opening[7].

(d) Development of a line of cleavage between the vaginal mucosa and the bladder wall; inversion of the bladder mucosa by the initial suture and the use of one or two layers of Lembert sutures to reinforce this suture line[1, 2, 12].

(e) Double drainage of the bladder and the maintenance of continuous decompression in the post-operative period[1, 6, 8, 11, 15].

The most commonly used operative procedures for the repair of these fistulas are:[9, 11, 13, 14]

1. The Vaginal approach is the most commonly used in the initial attempts at repair.

2. The Transperitoneal approach is utilized following several unsuccessful vaginal operations where scar tissue in the vagina mitigates against the vaginal approach[9, 13]. In the occasional post hysterectomy case the fistula may be inaccessible from below and can be approached only from above.

3. A combination of the vaginal and transperitoneal approaches with or without reimplantation of the ureter into bladder or colon, may be indicated by the complexity of the case. This approach was utilized by the authors and proved successful.

Colpocleisis: Latzko's operation for repair of a vesicovaginal fistula called for the denuding of a large area of the mucosa on the anterior and posterior vaginal walls and the approximation of these areas to seal over or to reinforce the closure of the bladder. More extensive vaginal ablation procedures may be necessary, and may be advisable, in the repair of large fistulas in cases of elderly patients in whom the sexual function need no longer be considered.

Summary: 1. A case of an unusually large vesicovaginal fistula following a cysto-rectocele repair has been presented.

2. The various steps in our management of the fistula have been described and the progress recorded.

3. The inadvisability of premature attempts at surgical repair of a fistula has been stressed. A waiting period of three to four months was found to be necessary to permit the edema and the infection to subside.

4. A combination of vaginal and transperitoneal approaches was used in the successful repair of the fistula.

5. The need for continuous bladder drainage in the post-operative phase utilizing both the suprapubic and urethral routes has been stressed.

1. Shaw, E. C.: "Vaginal transillumination in suprapubic repair of vesicovaginal fistula." Jr. of Urol., 70: 91, 1953.
2. Counseller, V. C.: "Some urologic phases of vesicovaginal fistula." Proc. Staff Meet. Mayo Clinic, 17: 113, 1942.
3. Scott, W. W. & Wilson, K. M.: "An operative technique for the treatment of vesicovaginal and ureterovaginal fistulas." S. G. & O., 69: 663, 1939.
4. Beneventi, F. A., & Gissen, A. J.: "Nonoperative cure of vesicovaginal fistula." Jour. of Urol. 72: 656, 1954.
5. Lovelady, S. B.: "Rectovaginal and vesicovaginal fistulas and stricture of the rectum following radium therapy: Report of a case." Proc. Staff Meet. Mayo Clinic. 13. 49, 1938.
6. Twombley, G. H. & Marshall, V. F.: "Repair of vesicovaginal fistulas caused by radiation." S. G. & O. 83: 348, 1946.
7. Walker, A. H. C.: "The management of urinary fistulas in a primitive population." S. G. & O. 99: 310, 1954.
8. Ewert, E. E.: "The management of vesicovaginal fistula." S. Clin North America. 30: 927, 1950.
9. Thiessen, N. W.: "Transperitoneal repair of a vesicovaginal fistula." Proc. Staff Meet. Mayo Clinic. 10: 375, 1935.
10. Longley, J. R., & Greene, L. F.: "Urologic procedures employed in the diagnosis of urinary-vaginal fistulas." S. G. & O. 94: 709, 1952.
11. Phaneuf, L. E. & Graves, R. C.: "Vesicovaginal fistula and its management." S. G. & O. 88: 155, 1949.
12. Hayes, S. N.: "The operative technique of complicated vesicovaginal and urethrovesicovaginal fistulas." S. G. & O. 81: 346, 1945.
13. Hubly, J. W. & Masson, J. C.: "Transperitoneal repair of vesicovaginal fistula." Proc. Staff Meet. Mayo Clinic. 13: 565, 1938.
14. Telinde, R. W.: "Operative Gynecology." J. B. Lippincott Co. 1946, p.p. 179-185.
15. Lavery, D. W. P.: "Vesicovaginal fistulae. A report on the vaginal repair of 160 cases." Obs. & Gyne. Br. Emp. 62: 530, 1955.

Excisional Therapy in the Treatment of Aneurysms and Occlusive Arterial Disease

James S. McGoey, M.D.
306 Medical Arts Bldg., Winnipeg
J. M. Kagan, M.D.
318 Medical Arts Bldg., Winnipeg

Until relatively recently the treatment of arterial aneurysms and arteriosclerotic occlusive disease has been generally unsatisfactory and, at the best, palliative. During the past few years, however, efforts have been directed towards a more effective form of therapy consisting of removal of the lesion and restoration of function by insertion of arterial homografts or blood vessel prostheses. It has not been possible to apply this type of therapy in all cases encountered, but accumulative experience is demonstrating that this can be the treatment of choice much more frequently than previously realized. The incidence of these conditions is increasing with the steadily increasing average span of life. The purpose of this report is to discuss the feasibility of applying the surgical methods of excision and replacement to these arterial lesions.

Clinical Observations

Aneurysms. There are two major causes of aortic aneurysms, syphilis and arterio-sclerosis. The former is decreasing in frequency with the improved treatment of the primary stage of this disease; the latter is increasing in relative and absolute numbers because of greater longevity. Syphilitic and arterio-sclerotic aneurysms fall into two separate clinical groups: Syphilitic aneurysms occur predominantly in the thoracic aorta; they are usually saccular; they appear earlier in life and are often associated with erosion of adjacent bone and cause considerable pain. The prognosis is poor, and according to Kampmeier[1] most patients will die within a year. In contrast arterio-sclerotic aneurysms are more likely to be in the abdominal region, usually below the renal arteries and are usually fusiform in shape. Clinically the pain is usually mild and poorly defined, until the time of impending rupture when the pain may be quite acute. The complications may be listed as follows: rupture, a period of leakage often preceding frank rupture; thrombosis, with the clot usually spreading to the host artery; peripheral emboli; enlargement with pressure symptoms; dissection. On physical examination there is a pulsating mass felt high in the epigastrium; the high level of the palpable lesion often gives the misleading impression that the aorta is involved above the renal arteries. Almost invariably further investigation will show that the renal arteries are not involved in this pathological process. This point is emphasized because it has been the experience of many in this field that many of these lesions have been judged non-resectable, when further investigation has shown them to be in the classical position below the renal arteries. The prognosis of abdominal aneurysms according to Estes[3] is variable, and a little better than the prognosis for aneurysms due to syphilis.

Arterio-sclerotic Occlusive Disease. In clinical practice during the past few years an increasing number of patients suffering from arterial deficiency of the lower limbs have been found to have a segmental occlusion of the main arterial trunks, rather than diffuse arteriosclerotic disease. Szilagyl[4], at the Henry Ford Hospital in Detroit, states that about 10 to 15 per cent of the patients complaining of symptoms referable to deficient arterial circulation of the lower limbs are found to have segmental lesions, and about 60 per cent of these are suitable for direct surgical treatment. Shaw and Wheelock[5] of Boston state that about 25 per cent of patients with femoral artery occlusion proved to have segmental occlusion and more than half of these were grafted. The segmental occlusions amenable to surgical treatment are more or less sharply limited to short segments of the large arteries of the lower limbs and the distal portion of the abdominal aorta. It is generally felt that this occlusion is caused by local factors, mechanical stresses and hemodynamic strains, probably secondary to the evolutionary adoption by man of an upright position and a proportionally greater elongation of the lower limbs. These stresses and strains give rise to local degenerative changes which progressively lead to segmental arterial occlusion, lesions which are not found in the upper limb. By analogy, the upright position is thought to cause the degenerative changes in the vertebral column treated so frequently by the orthopedic surgeon. The results of large angiographic surveys have shown that the occlusions, with few exceptions, are found in the aorto-iliac segment and the mid third of the superficial femoral artery.

As is generally known, the outstanding clinical symptom is intermittent claudication and the site and severity of the pain varies with the extent and level of the obstruction. Aorto-iliac occlusion produces pain in the gluteal and upper thigh regions whereas superficial femoral artery occlusion causes claudation in the lower thigh or sural regions. Some authorities believe that rest pain is important in differentiating between a surgically amenable condition and diffuse arteriosclerosis. However, Shaw and Wheelock[5] in their recent book report that more than half of their 22 cases of femoral artery grafts had severe ischemia and unbearable pain. On physical examination, palpation of the pulsation of the femoral, popliteal, and distal arteries establishes which of the two common types of occlusion exists.

Methods of Investigation

Aneurysms. For thoracic aneurysms angiocardiography, as developed by Dotter and Steinberg[6], has been proven to be the best method of investigation. The method generally used consists of a rapid injection of 50cc. of a radio-opaque medium (70% Urokon) into an anti-cubital vein, immediately followed by serial X-ray films of the chest taken at half-second intervals by the use of rapid cassette changers. Recent technical developments have made it possible to obtain simultaneous films in two projections.

Abdominal aneurysms are best visualized by the use of translumbar aortography after the method first developed by Reynaldo Dos Santos[7] in 1929. The angiograms are obtained with the patient under general anaesthesia by Pentothal Sodium given intravenously. We inject 20cc of 70% Urokon through a long No. 17 needle inserted three finger breadths to the left of the midline just below the 12th rib inclined at 45 degree angle in all planes. Serial arteriograms are then obtained by using a rapid film-changing device as described above for angiocardiography during a single injection. The first exposure is timed to coincide with injection of the last cubic centimeter of contrast medium.

Occlusive Arterial Diseases. According to Szilagyi[4] an angiographic survey should be done on all cases of chronic peripheral arterial insufficiency without gangrene. These studies should be done on patients on whom excisional therapy is contemplated and in institutions equipped to get the most from this work. The initial study of these patients should consist of translumber aortography as described above, followed by femoral arteriography if considered necessary. The femoral arteriogram may be done by direct surgical exposure of the vessel or by the percutaneous method.

Contraindications to arteriographic studies are the same as those for injection of similar materials in procedures such as intravenous urography and intravenous cholangiography; namely, iodine sensitivity, advanced renal disease, and marked history of allergy.

Treatment

The excisional treatment of these two large groups of arterial lesions is of relatively recent date. However, the principles of excision, replacement and suture of blood vessels were well established experimentally half a century ago by the pioneer work of Carrel[8] and Guthrie[9]. The clinical fulfillment of this basic work had to await the development of ancillary supportive measures, such as improved anaesthesia, blood banks and antibiotics. During this interim aneurysms have been treated either palliatively or by inadequate methods, such as wrapping and wiring; and arterial occlusive disease has been treated by indirect methods, such as the use of vasodilating drugs and various types of sympathectomy. Because of the poor results of these methods of treatment the surgical principles of excision and replacement with a graft are now being applied at many medical centers of the world with early gratifying results.

Aneurysms: Thoracic aorta. Small saccular aneurysms of the thoracic aorta, in which the neck is small and the wall of the vessel is suitable for suture, may be excised with lateral arteriorrhaphy. Under these circumstances the aorta is not involved in its entire circumference by the pathologic process, and enough normal tissue is available for satisfactory repair of the defect. These lesions may be approached by a right or left anterior thoracotomy incision with extension of the incision by median sternotomy or transverse sternotomy, as required.

The excision of fusiform aneurysms, in which the pathological process involves the entire circumference of the thoracic aorta, presents a different problem. Extirpation of these lesions requires the excision of a segment of aorta containing the aneurysm and a concomitant interruption of aortic blood flow, followed by bridging of the defect with either an arterial homograft from the blood vessel bank or a plastic cloth prosthesis. An important consideration caused by a temporary interruption of the circulation is the danger of the ischemic effects on the spinal cord, leading to paraplegia. As is well known, the thoracic aorta may be occluded for long periods of time during surgical treatment of congenital coarctation, but in this instance a rich collateral circulation has been established since birth. An aneurysm arising later in the life of an individual produces no increased collateral circulation to permit long periods of occlusion. It has been found experimentally by Bigelow[10] and others, and clinically by De Bakey[11] that hypothermia may be used to expand the period of safe aortic occlusion by lowering the metabolic demands of the spinal cord. Hypothermia used in this instance is relatively safe for the temperature need not be lowered below 29 degrees C. as compared to the more dangerous levels required for intracardiac surgery. A left thoracotomy opposite the origin of the aneurysm with extension into the abdomen, if necessary, is the surgical approach used for aneurysms located in the lower thoracic and upper abdominal aorta.

Aneurysms: Abdominal aorta. In 1951 Dubost[12] reported the resection of an aneurysm extending from below the renal arteries downward to involve the aortic bifurcation and the re-establishment of continuity of the aorta by using a homologous arterial graft. This procedure meets

the ideal objectives of surgical therapy, namely, extirpation of the diseased part and restoration of normal function. In general, various methods of surgical attack have not been fruitful. These included methods to promote thrombosis and fibrotic organization and endo-aneurysmorrhaphy.

To expose the aneurysm a left mid-rectus incision, extending from the xiphoid to the pubic symphysis, is used. The small intestine and its mesentery is retracted to the right, and the peritoneum is then incised over the aneurysm. In exposing the aorta above the aneurysm, care must be taken to avoid injury to the duodenum and the left renal vein. An umbilical tape or a Penrose drain is placed around the aorta between the renal arteries and the upper margin of the aneurysm to provide a safety measure for the control of accidental haemorrhage. The common iliac vessels are likewise encircled with umbilical tapes. The aneurysm is dissected from surrounding structures taking particular care to avoid injury to the inferior vena cava which is often very adherent. Before applying atraumatic arterial clamps to the aorta above and the iliac arteries below, ten mgm. of heparin solution is injected into the aneurysm to prevent thrombosis in the distal vascular tree. The aneurysm is then excised between the clamps. Continuity of the aorta is restored by the use of an aortic homograft or some type of plastic cloth prosthesis. If the bifurcation is involved by the pathological process, with extension into the iliac vessels, a suitably measured graft is required.

Occlusive Arterial Disease. The availability of homologous arterial grafts and the growing confidence in their behaviour has attracted surgeons to a more direct surgical attack in the treatment of occlusive arterial disease. Methods such as thromboendarterectomy and resection with autogenous vein graft replacement have been given extensive clinical trial up to this time, but have not proven to give completely satisfactory results. Certainly, on physiologic and anatomic grounds the most desirable form of treatment would appear to be resection and replacement with a homologous arterial graft. The recorded experience of this treatment of aorto-iliac and superficial femoral arterial occlusion, while very recent, is already considerable and growing rapidly.

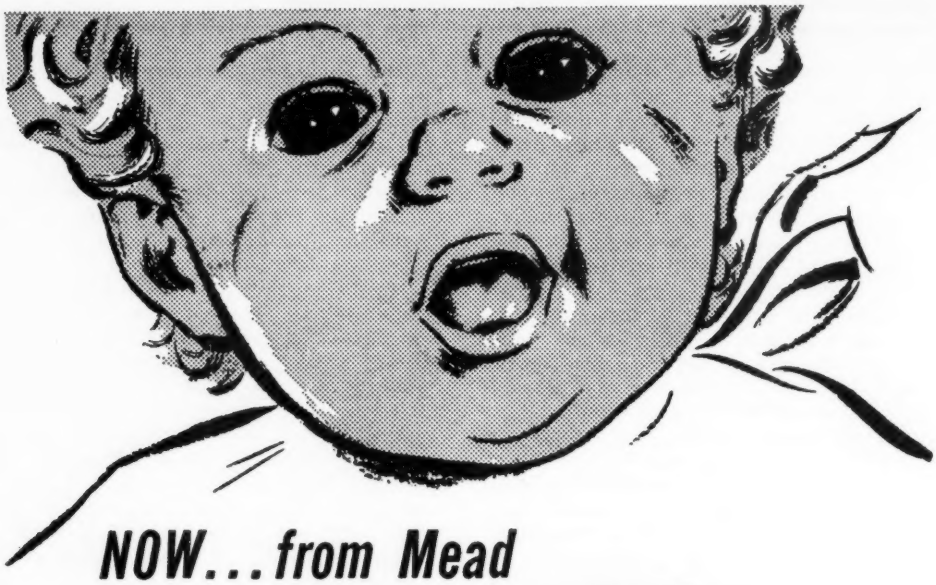
Oudot[13] in 1951* reported the successful resection in three cases of aorto-iliac occlusion and restoration of vascular occlusion and restoration of vascular continuity with a preserved homologous graft. Aorto-iliac occlusion is generally considered to begin in the common iliac arteries with progression to the aortic bifurcation, so resection of the entire bifurcation is the logical procedure. The technique of the approach to and the resection of this segment of the arterial tree is similar to that mentioned for the resection of aneurysms in this region In fully developed aorto-iliac occlusion the distal limit of the disease process is not always sharply defined and the operator must be prepared to perform intemectomy of the distal iliac stumps to the region of a smooth and firm intimal layer prior to anastomosis. Occasionally replacement of the entire external iliac artery will be preferable to endarterectomy.

In the treatment of superficial femoral artery occlusions by resection and grafting certain principles must be observed to obtain maximum results. The "rule of the collaterals," as enunciated by Holman[14] for the ligation of large arteries, is important to observe to avoid post-operative thrombosis in the graft. In order to visualize clearly the segment devoid of collaterals a good preoperative angiogram of the entire femoral tree is essential. According to Shaw and Wheelock[5], the extent of thigh dissection should be minimized since it affects the late post-operative morbidity. For an occlusion which involves a long segment they advise the use of two separate incisions over the upper and lower thigh and the diseased segment is not resected.

The principles of blood vessel surgery, as enunciated by Guthrie[9] in 1908, still obtain; namely, "gentle handling of the vessels, protection from drying, smooth approximation of intimal surfaces, and fixation by means of atraumatic needles and thread in proportion to the size of the vessels."

Bibliography

1. Kampmeier, R. H.: Saccular Aneurysm of the Thoracic Aorta. A Clinical Study of 633 Cases. Ann. Int. Med., 12: 624, 1938.
2. Robb, Chas.: Arterial Aneurysms. Annals of Roy. Col. of Surg. of England, January, 1954.
3. Estes, J. E., Jr.: Abdominal Aortic Aneurysm. A Study of 102 Cases. Circ. 2: 258, 1950.
4. Szilagyi, D. E. and Overhulse, P. R.: Segmental Aorto-iliac and Femoral Arterial Occlusion. J.A.M.A., 157: 426, January 29, 1955.
5. Shaw, R. and Wheelock, F.: Blood Vessel Grafts in the Treatment of Chronic Occlusive Disease in the Femoral Artery. Surgery, 37: 94, January, 1955.
6. Dotter, C. T. and Steinberg, I.: Angiocardiography. New York, 1951. Paul B. Huber, Inc.
7. Dos Santos, R., Lamas, A. and Pereira Caldes, J.: L'arteriographie des membres de l'aorte et de ses branches abdominales. Bull. Mem. Soc. Mat. Chir., 55: 587, 1929.
8. Carrel, Alexis: Results of the Transplantation of Blood Vessels, Organs and Limbs. J.A.M.A., 51: 1662, Nov. 14, 1908.
9. Guthrie, C. G.: Some Physiologic Aspects of Blood Vessel Surgery. J.A.M.A., 51: 1658, November 14, 1908.
10. Bigelow, W. G. et al: Hypothermia. Ann. of Surgery, 132: 849, November, 1950.
11. Cooley, D. and DeBakey, M. D.: Resection of the Thoracic Aorta with Replacement by Homograft for Aneurysms and Constrictive Lesions. J. of Thor. Surg., 29: 66, January, 1955.
12. Dubost, C., Allary, M. and Oeconomos, M.: A propos du traitement des anevrysmes de l'aorte: Ablation de l'anevrysme: Retablissement de la continuite par greff d'aorte humaine conservee. Mem. Acad. Chir., 77: 381, April 11-18, 1951.
13. Oudot, J.: Deux cas de greffe de la bifurcation aortique pour syndrome de Leriche par thrombose arteritique. Mem. Acad. Chir., 77: 636, 1951.
14. Holman, Emile: Further Observations on Surgery of the Large Arteries. S. G. & O., 78: 275, March, 1944.

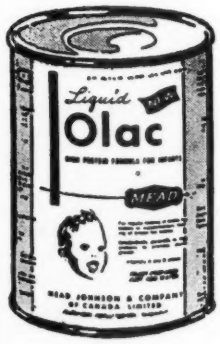


NOW... from Mead

Liquid Olac

Olac, the infant formula containing all essential nutrients—Protein, Fat and Carbohydrates—is now available as a liquid, as well as in the familiar powdered form.

- *New convenience* with *Liquid* Olac—just add water. Normal dilution of 1 part *Liquid* Olac, and 1 part water supplies 19 calories per fluid ounce.
- *Liquid* Olac contains 167 I.U. Vitamin A and 40 I.U. Vitamin D per fluid ounce.
- *Liquid* Olac contains a *single vegetable fat,* well assimilated and tolerated by both full-term and premature infants.
- *Liquid* Olac is exceptionally generous in milk proteins to promote sturdy growth.



For healthy babies, for mother's convenience and appreciation, prescribe

Liquid **Olac**

Reg. T.M.

Available in 15 ounce tins.

MEAD | SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY OF CANADA LIMITED • TORONTO • BELLEVILLE

Allergy

Hypersensitivity to Cold

E. L. Muttitt, M.D.
Department of Allergy
Medical Arts Clinic, Regina, Saskatchewan

Abnormal reactions to physical agents such as cold, heat, light, friction, and pressure have been recognized for many years, and have been termed physical allergies. There is considerable controversy regarding the use of the word "allergy" in respect to these reactions, because this indicates an immunologic mechanism, which has not been conclusively demonstrated.

Hypersensitivity to cold has been more extensively investigated than the other physical allergies. Any organ system of the body can give rise to symptoms because of an excessive sensitivity to cold, but the incidence of symptoms is difficult to evaluate. Very few studies have been conducted to determine the importance and frequency of symptoms due to cold[1, 2, 3]. From these studies it appears that hypersensitivity to cold is no more frequent in allergic than in non-allergic individuals. In groups of unselected, and allergic patients the incidence of abnormal reactions to cold has been between 15 and 25%. Most of those who develop symptoms on exposure to cold show an increase in the eosinophils in the nasal smear. In these, antihistamines usually prevent the reactions. These studies indicate that cold sensitivity is a relatively common abnormality. The increase in eosinophils in the nasal smear, and the relief of symptoms by antihistamines suggest an allergic mechanism.

The abnormal reactions which may occur on exposure to cold, and which may be included as hypersensitivity reactions can be classified as contact and reflex.

The contact reactions, which occur at the site of contact with cold, may be local, consisting of urticaria and angioedema affecting the skin or the mucous membranes, or if more extensive, they may be systemic, probably due to the release of histamine.

The reflex reactions are certainly more common than the contact type. They may affect any organ system. If the gastrointestinal system is involved, nausea, vomiting, diarrhoea, and abdominal pain may occur. Involvement of the genitourinary system may lead to irritable bladder, bladder pain, or nephritis. If the cardiovascular system is the site of the reaction, angina, arrhythmias, tachycardia, and intermittent claudication may result. Commonly, respiratory symptoms such as rhinitis, asthma and cough are precipitated by exposure to cold. Symptoms referable to the musculoskeletal system and skin may be myalgia, arthralgia, erythema, pruritis, and urticaria. Convulsions have been reported, and constitutional symptoms such as syncope, effort syndrome and shock have been attributed to cold.

This is only a partial list of the symptoms which can arise due to hypersensitivity to cold according to some authors.

The most obvious abnormal reaction to cold is cold urticaria, the contact reaction. It was reported in the French literature by Bourdon[4] in 1866 and Blachez[5] in 1872, and there are well over one hundred cases recorded at this time. It is more common than urticaria due to heat or light[6]. It affects the sexes equally, and if males are affected they are usually young, while females are usually middle aged[7]. The patients are active, and have a subnormal and irregular temperature chart. The abnormal reaction to cold is inhibited by an increase in body heat, as with infection or exercise[8]. The condition may be primary, or may follow a variety of illnesses.[6, 9, 10, 11, 12, 13] Several cases of familial cold urticaria have been reported.[14, 15, 16, 17] Cold urticaria may be associated with the interesting syndrome of cryoglobulinemia.[18, 19, 20, 21, 22]

The symptoms of cold urticaria may be local, systemic, or both. The patient has no symptoms while exposed to cold, but when the exposed areas are warmed, urticaria and severe pruritis develop. The wheals may coalesce so that general edema is seen. The temperature gradient is important; that is, the skin must be cooled and then warmed. The temperature at which whealing occurs varies from patient to patient. If there are no generalized symptoms, the urticaria gradually disappears and the patient feels well.

Systemic symptoms occur in over 50% of the patients, and follow the urticaria in 4-6 minutes. Flushing of the face occurs, and is associated with an increase in skin temperature. Faintness and syncope occur as well as tachycardia, extrasystoles, hypotension, nausea, vomiting, dyspnoea and myalgia. These patients may be investigated by the immersion test, which involves immersing a hand and forearm in ice water for five minutes. If this is done, several interesting phenomena may be noticed as well as the local and systemic symptoms[23]. Arterialization of venous blood occurs, probably due to the creation of physiological arteriovenous fistulae because of intense vasodilatation. Inversion of T waves in the electrocardiogram is seen at times, and an increase in gastric acidity can be demonstrated. Haemoglobinuria has been reported, but is more common in cold urticaria associated with syphilis.

Presented at the Regional Meeting of the American College of Physicians, Saskatoon, Sask., Feb. 1956.

The symptoms may be produced by cold air or wind, cold water or food. They may be produced in a single patient by all of these or by only one. People with a mucous membrane sensitivity have swelling of the lips and mouth after ingestion of cold food or drink. It is thought that some cases of drowning are due to hypersensitivity to cold.

The diagnosis of cold urticaria is usually obvious from the history. It can be proven by placing an ice cube on the patient's forearm for five minutes. In a few minutes after the removal of the ice a wheal develops.

The mechanism of hypersensitivity to cold is not definitely known. Most of the investigation has been done on patients with cold urticaria. Several theories have been offered, and the two main ones are the immunologic theory, and the theory of histamine release.[2, 8, 15, 16, 24, 25, 26, 27]

I Immunologic Theory

Those who support the immunologic theory believe that hypersensitivity to cold is a true allergy based on an antigen-antibody reaction. Their opinion is supported by the following facts.

A. In 50% of the cases the sensitivity can be passively transferred in the patient's serum to the skin of suitable recipients.[6, 13, 18, 25, 28, 29] Passive transfer using various techniques was not possible in the patient whose ice test was shown above. In three other cases I have been unable to passively transfer the cold sensitivity.

B. The specificity of the reaction, and specific exhaustion at the site of passive transfer favor an immunologic mechanism. The symptoms, and exhaustion at the transfer site are both produced only by cold[18].

C. The binding or neutralization of the cold antibodies by skin cells at low temperatures has been demonstrated.[13, 28, 29] This indicates that a substance with the characteristics of an antibody is neutralized or destroyed, and passive transfer using serum exposed to skin cells at a cold temperature is negative.

D. Karady[30] produced anaphylaxis in guinea pigs with two intraperitoneal injections of cold treated guinea pig serum two weeks apart. Anaphylaxis did not occur if the second injection contained non treated, or heat treated serum. If the hind legs of a guinea pig were immersed in ice water for two minutes, and this procedure was repeated in two weeks, anaphylaxis again occurred. Karady believed that cold caused a structural change in the plasma or cell protein making it a foreign protein to which the animal became sensitive. These altered proteins are autoantigens.

II Theory of Histamine Release

It seems certain that most cases of cold urticaria are associated with a massive release of histamine. It is the only so-called allergic disorder in which the release of histamine in association with symptoms, has been conclusively demonstrated. Blood histamine curves show a definite rise in plasma and total blood histamine during an immersion test. The plasma histamine is responsible for the production of symptoms. In further support of the theory of histamine release, Horton[23, 24, 31, 32, 33] has repeatedly shown that the complete syndrome can be precipitated by the injection of histamine; that a tourniquet placed on the arm immersed in ice water will prevent the development of systemic symptoms, but that when it is removed the symptoms develop more rapidly, and are more severe; that an increase in gastric acidity follows exposure to cold in these patients; that there is extreme vasodilatation of blood vessels in the exposed areas; and that hyposensitization to histamine, and the use of antihistamines, and histaminase may all be valuable forms of therapy.

It has been demonstrated that saline washings of wheals produced by cold cause whealing when injected into neighboring skin[8, 11]. This indicates the presence of a histamine-like substance.

The evidence supporting histamine release is thought by some to indicate an immunologic mechanism, as antigen-antibody reactions are believed to result in the freeing of histamine from its intracellular inactive state.

Cold may directly damage cells resulting in the release of histamine[23, 34].

III Theory of Acetylcholine Release

Some cases show no evidence of histamine release. Herlitz[6] described one of these patients who developed all her symptoms after the injection of acetylcholine, and who was greatly improved by atropine and hyposensitization to acetylcholine. This type of case may be due to the release of acetylcholine from the peripheral cutaneous nerves, or a deficiency of the cholinesterase system. It is unusual, and cholinergic urticaria is more commonly associated with heat sensitivity. Acetylcholine may cause the secondary release of histamine.

IV Theory of Cold Pathergy

The term cold pathergy has been introduced by Urbach[15] to indicate an altered reaction to cold regardless of the mechanism. This author believes the reactions are due to an instability of the peripheral neurovascular system. In favor of this is the fact that many cases develop after an illness or trauma, and the urticaria may be confined to one area.

V Theory of Metallergy

Metallergens are secondary allergens which cause the same type of reaction as the primary allergen. Cold is considered to be a metallergen by some, and it is thought that this may explain the onset of cold urticaria after serum sickness[6], or in association with food allergy[12, 35].

VI Theory of Reflex Action

The theory of reflex action suggests the abnormal reaction is due to the sensation of cold. Definite urticaria has not been produced by treating the skin with menthol which gives a sensation of cold[11]. Impressive contradictory evidence is supplied by the facts that a tourniquet on the immersed arm will prevent systemic symptoms, and that local anaesthesia will not prevent the reaction[11].

It is possible that in one patient the symptoms may be due to one mechanism, while in another patient the mechanism may be quite different[15]

The treatment of cold urticaria is not entirely satisfactory, although most patients can be given some relief. In some patients, the symptoms will disappear spontaneously[10, 36], while in others the symptoms continue with no change, or become worse in spite of all forms of treatment[19, 29, 34].

The immediate treatment for most cases of cold urticaria is the injection of adrenaline. This is rarely necessary, but in an attack with systemic symptoms it may be valuable. Warming the body stops symptoms.

Perhaps the simplest form of treatment is with antihistamines. At least 50% of the cases derive some benefit, but rarely is relief complete. Large doses of these drugs should be used before concluding that they are of no use in a particular case[14, 18, 25, 27, 37, 38]. The action of antihistamines can be demonstrated by their effect on the histamine curve following an immersion test, or by performing the ice test after antihistamines. These drugs inhibit the release of histamine.

Hyposensitization to cold by exposing the patient to gradually increasing amounts of cold is at least as effective as antihistamines[24, 33]. Some report that 75% are controlled[32].

Hyposensitization to histamine may be effective in those patients who are histamine sensitive[7, 11, 24, 31].

Histaminase, an enzyme which destroys histamine, has been used in cold urticaria with moderately good results[31, 39].

Atropine or hyposensitization to acetylcholine has been used in cholinergic cold urticaria.

A case has been reported in which intravenous ACTH completely controlled the symptoms produced by an immersion test[9].

The patient with the positive ice test, shown previously, was treated with antihistamines and hyposensitization to cold. His symptoms are greatly improved, but the ice test is unchanged. This is possibly analogous to the unchanged skin test following protein hyposensitization.

Although a great deal of the foregoing discussion of the rare condition of cold urticaria is hypothetical, it is easily recognized and much is known of its mechanism. The reflex reactions due to cold, on the other hand, are difficult to recognize and their mechanism is obscure.

Duke has done much of the investigation of this less obvious form of hypersensitivity to cold[40, 41, 43]. The reflex reactions are systemic in nature, but are not associated with local manifestations. This probably explains, in part, why they are so rarely recognized. Into this group of reflex reactions fall the numerous symptoms previously enumerated — respiratory, cardiovascular, genitourinary, gastrointestinal, etc. Some authors believe that cases of all these symptoms may be due to hypersensitivity to cold. It is certain that few physicians consider the possibility of a physical allergy in patients presenting themselves with these various symptoms, yet 15-25% of people have symptoms on exposure to cold. It appears that the main reason for the failure to diagnose reflex cold hypersensitivity is the failure to suspect its presence. The disorder can be proven by precipitating symptoms with cold, such as the immersion test, and relieving them with heat.

It is thought that the basis of reflex hypersensitivity to cold is a derangement of the temperature regulating mechanism. Those who favor this theory believe it may also explain cold urticaria. The fact that the condition frequently develops after an infection or some trauma, or accompanies anaemia, disease of the central nervous system, endocrines and arterial system, is thought to support the theory of a disturbed temperature regulation. Further confirmation is derived from the findings that the patients have an unstable temperature, and basal metabolic rate; that they are frequently hyperaesthetic to cold; and that they are more active than normal, an increase in body heat through exercise preventing the reactions.

There has been no proof that reflex hypersensitivity reactions are due to an allergic mechanism. The theories of cold pathergy, and reflex action, as previously described, may explain the abnormal reactions. A tourniquet does not prevent these reflex symptoms during an immersion test as it does in cold urticaria, and it is thought the symptoms may be due to the sensation of cold.

Marked relief has followed the repeated precipitation of symptoms by cold and their alleviation by heat. This would appear to be a form of hyposensitization. Adrenaline relieves the symptoms.

It is likely that all patients with allergic symptoms should be tested with physical agents as they are now tested with protein extracts. Although physical agents are probably aggravating rather than basic causes, their adequate control will facilitate the management of these patients.

Hypersensitivity to cold presents a relatively new concept—that a physical agent can produce

an allergic response by its action as an antigen. More studies to determine the incidence of hypersensitivity reactions to cold are necessary. If it is true that 15-25% of people have symptoms of an allergic nature on exposure to cold, a greater awareness of this disorder is indicated.

Bibliography

1. Mathov, Enrique, Allergy to Cold as an Occupational Disease, Annals of Allergy, 8: 373, 1950
2. Mathov, Enique, Allergy to Cold in the Respiratory System, Annals of Allergy, 8: 366, 1950.
3. Swineford, O., Physical Allergy, J. of Allergy, 6: 175, 1934-35.
4. Bourdon, H., Note Sur L'Urticaire Intermittente., Bull. et Mem. Soc. Med. d. Hop. de Paris, 3: 254, 1866.
5. Blachez, Observation D'Urticaire. Bull. et Mem. Soc. d. Hop. de Paris, 9: 274, 1872.
6. Herlitz, Cold Allergy and Acetylcholine. International Archives of Allergy and Applied Immunology, 4: 1, 1953.
7. Bray, G. W., A Case of Physical Allergy. A Localized and Generalized Allergic Type of Reaction to Cold. J. of Allergy, 3: 367, 1931-32.
8. Levine, H. D., Urticaria Due to Sensitivity to Cold. A.M.A. Archives of Int. Med., 56: 498, 1935.
9. Kelly, Wise, Observations on Cold Sensitivity. Am. J. of Med., 15: 431, 1953.
10. Kobacker, J. L., Parkhurst, H. J., Cold Urticaria Following Measles in Three Sisters, J.A.M.A., 105: 662, 1935.
11. Saylor, L. L., Wright, I. S., Studies on Two Cases of Urticaria from Cold Sensitivity and the Effect of Histamine Treatment. Am. J. of Med. Sc., 192: 388, 1936.
12. Herlitz, Cold Urticaria, etc. Int. Archives of Allergy and Applied Immunol., 4: 10, 1953.
13. Harris, K. E. et al, Haemoglobinuria and Urticaria from Cold Occurring Singly or in Combination. Heart, 14: 305, 1929.
14. Witherspoon, F. G., et al, Familial Urticaria Due to Cold. Archives of Dermat. and Syphilology, 58: 52, 1948.
15. Urbach, E., et al, Cold Allergy and Cold Pathergy. Archives of Dermat. and Syph., 43: 366, 1941.
16. Rodin, H. H., Bluefarb. Cold Urticaria. J. of Indiana State Med. Assoc., 44: 846, 1951.
17. Kile, R. L., Rusk, H. A., A Case of Cold Urticaria with an Unusual Family History. J.A.M.A., 114: 1067, 1940.
18. Steinhardt, M. J., Cold Urticaria and Purpura as Allergic Aspects of Cryoglobulinemia. J. of Allergy, 24: 335, 1953.
19. Kramer, Cold Sensitivity with Cold Haemagglutinins. Angiology, 2: 283, 1951.
20. Lerner, A. B., Watson, L. J., Studies of Cryoglobulins. Am. J. of Med. Sc., 214: 410, 1947.
21. Barr, et al, Cryoglobulinemia. A Report of Two Cases. Annals of Int. Med., 32: 6, 1950.
22. Dreyfuss, Librach, Cold Precipitable Serum Globulins in Subacute Bacterial Endocarditis. J. of Lab. and Clin. Med., 40: 489, 1952.
23. Horton, B. T., Brown, G. E., Histamine-Like Effects on Gastric Acidity Due to Cold. Proc. Staff Meet. Mayo Clinic, 7: 367, 1932.
24. Horton, B. T., Brown, G. E., Systematic Histamine-like Reactions in Allergy Due to Cold. Am. J. of Med. Sc., 178: 191, 1929.
25. Rajka, E., Absoth, A., Cold Urticaria. Ann. of Allergy, 9: 642, 1951.
26. Walzer, M., A Critical Review of Recent Literature on Physical Allergy. J. of Allergy, 9: 64, 1937-38.
27. Rothschild, J. E., Effects of Benadryl on Systemic Manifestations of Cold Hypersensitivity. J. of Allergy, 20: 62, 1949.
28. Sherman, W. B., Seebohm, P. M., Passive Transfer of Cold Urticaria. J. of Allergy, 21: 414, 1950.
29. Samsoe-Jensen, T., Cold Urticaria. Acta Dermato-Venereologica, 35: 107, 1955.
30. Karady, S., Role of "Auto-Antigens" in the Pathogenesis of Physical Allergy. J. of Immunology, 37: 457, 1939.
31. Roth, G. M., Horton, B. T., Hypersensitiveness to Cold; Treatment with Histamine and Histaminase: Report of Case. Proc Staff Meet. Mayo Clinic, 12: 129, 1937.
32. Horton, B. T., et al, Hypersensitiveness to Cold, J.A.M.A. 107: 1263, 1936.
33. Horton, B. T., Cold Allergy: Proc. Staff Meet. Mayo Clinic, 2: 276, 1927.
34. Mullinger, M. A., Bogoch, A., Cold Hypersensitivity, C.M.A.J., 58: 499, 1948.
35. Brown, G. E., Horton, B. T., Systemic Histamine-Like Reactions in Allergy Due to Cold. J. Allergy, 1:193, 1930.
36. Berry, Allergy to Cold: New Zealand Med. Journal, 53: 156, 1954.
37. Perry, E. L., Horton, B. T., Use of Pyribenzamine in Prevention of Histamine Induced Gastric Acidity and Headache, and In The Treatment of Hypersensitiveness to Cold. Am. J. of Med. Sc., 214: 553, 1947.
38. Notier, V. A., Roth, G. M., Treatment of Hypersensitiveness to Cold with Benadryl: Report of a Case. Proc. Staff Meet. of Mayo Clinic, 21: 170, 1946.
39. Roth, G. M., Horton, B. T., Histaminase-Physiological Effects on Man and Its Therapeutic Value in Medicine. Bull. of N.Y. Acad. of Med., 16: 570, 1940.
40. Duke, W. W., Treatment of Physical Allergy: J. of Allergy, 3: 408, 1931-32.
41. Duke, W. W., Relationship of Heat and Effort Sensitiveness and Cold Sensitiveness to Functional Cardiac Disorders Including Angina Pectoris, Tachycardia and Ventricular Extrasystoles. J. of Allergy, 4: 38, 1932-33.
42. Duke, W. W., Heat and Effort Sensitiveness, Cold Sensitiveness. A.M.A. Archives of Int. Med., 45: 206, 1930.
43. Kierland, R. R., Physical Allergies: A.M.A. Archives of Derm. and Syph., 68: 61, 1953.

Erratum

In the May issue of the Review, Vol. 36, No. 5, pp. 290, "Diagnosis and Treatment of Hyperthyroidism" by John C. Beck, M.D., F.R.C.P. (C), Dr. Beck's new address is Royal Victoria Hospital, Montreal 2, Que., instead of St. Boniface Hospital, St. Boniface, Man.

A Lion, Ass and Fox

A Lion, an Ass and a Fox ran down a Stag and the Ass was to divide the Prey. As he was doing this Honestly and Innocently, into three equal Parts, the Lion fell on and kill'd him. Then the Lion bad the Fox divide: who had the wit to put the Whole to the Lion's Share, saving only a Miserable Pittance for him self.

The Moral: "*The Folly of one Man makes another Man wise*"

Doubly wise then is he who profits by the wisdom of others in recognizing established quality.

For Low Fat Diets

Borden's Starlac is an easily digested, highly palatable skim milk powder of prescription quality. Starlac is the most economical source of protein available, and is superior to ordinary skim milk in

- **Flavour**
- **Texture**
- **Solubility**

STARLAC—APPROXIMATE COMPOSITION		
	Dry	Reconstituted*
Protein	36.5%	3.5%
Lactose	52.0%	5.0%
Milk Fat	1.0%	0.1%
Minerals	8.0%	0.8%
Calcium	1.3%	0.13%
Phosphorus	1.0%	0.1%
Moisture	2.5%	90.6%
Calories (per oz.)	103	11

*(4 oz. by weight to 40 oz. water—1 qt.)

Other Borden's Formula Foods

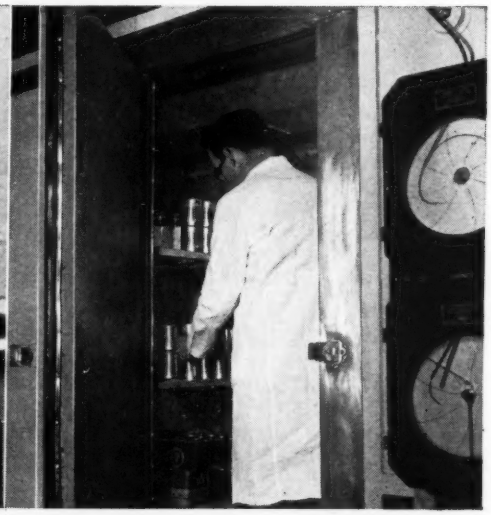
Dryco•Lactic Acid Milk Powder (C.M.P. Brand)**•Evaporated Milk**
Nutrilac • Mull-Soy • Protein Milk Powder (C.M.P. Brand)

For detailed information on
Borden's Formula Foods, write

THE BORDEN COMPANY, LIMITED

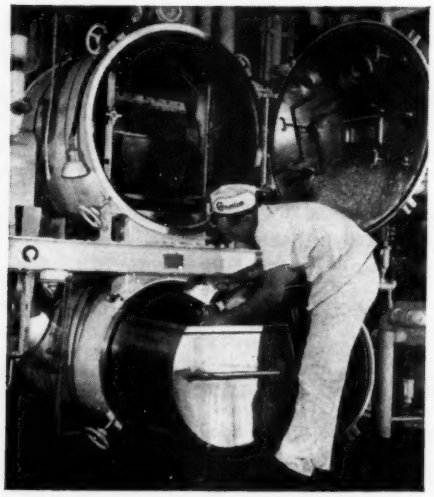
Formula Foods Dep't., Spadina Crescent,
Toronto, Ontario

Report | from Carnation Research Laboratory



Nutritional Research

The never-ending effort to reach even higher standards for Carnation products includes both biological and analytical research. In the latter phase, all necessary, highly-definitive equipment is available at Carnation Research Laboratory. Here, for example, a staff member determines vitamin B content of a Carnation product, using a Beckman Quartz Spectrophotometer.



Product Stability Research

Carnation research also assures product stability–the *retention* of optimum food values under maximum adverse conditions. Among other facilities in this phase of research, a diurnal cycling cabinet permits staff members to study Carnation products under extremes of temperature and humidity.

Mass Production Research

Carnation Research Laboratory includes a complete pilot plant staffed by competent technicians. This plant permits production of new or improved Carnation products in quantities beyond laboratory amounts. Mass production problems can be detected and further research instituted.

CARNATION PROTECTS YOUR RECOMMENDATION WITH CONTINUOUS 5-PHASE RESEARCH:

Carnation Research Laboratory,
Carnation Farms,
Carnation Plant Laboratories,
Carnation Central Product Control Laboratory,
Carnation-sponsored University and Association Research.

"from Contented Cows"

Obstetrics & Gynecology

Caesarean Section — Indications and Surgical Technique

A. S. Majury, M.B., M.R.C.O.G.
Department of Obstetrics and Gynaecology, Winnipeg Clinic, Winnipeg, Manitoba

"That operation is called Caesarean by which any way is opened for the child than that destined for it by nature." (Baudelocque)

The origin of the name Caesarean Section is still obscure, though the popular belief is that Julius Caesar was so delivered. However, this is almost certainly incorrect as it is known that Aurelia, his mother, was still alive when he undertook the invasion of Britain, and her survival of such an operation is unlikely. It is thought that, until comparatively recent times, almost all Caesarean Sections which were performed were on women who had died in pregnancy—the hope being to preserve the life of the child. It is probable, however, that the operation was performed occasionally on the living as a Jewish book, written before Christ, states "it is not necessary for women to observe the days of purification after removal of a child through the parieties of the abdomen."

In the British Isles the first recorded successful Caesarean Section was performed, by a midwife, in Ireland in 1738, and this patient is said to have survived—with the subsequent development of a large ventral hernia. The first Caesarean Section performed in the United States was a self inflicted operation (as were very many of the earlier ones) and took place in 1822. This patient too is said to have survived.

During the first 75 years of the 19th century the operation came to be performed more frequently, though British practitioners viewed it with disfavour, preferring destructive operations to the child, such as craniotomy. In 1876 Porro described his operation, which marked an advance in the technique of Caesarean Section. This consisted of Caesarean Section followed by subtotal hysterectomy and removal of the appendages. This reduced the high death rate from infection by removing the placental site. In 1882 Sanger described the technique of careful suturing of the uterine wound and thereby preserving the uterus. Although incision in the lower uterine segment instead of in the upper uterine segment (or classical operation) had been performed as early as 1881, it was only from about 1920 onwards that the lower segment operation became popular.

Incidence

The incidence of Caesarean Section varies with the type of obstetric practice. In British hospitals, which deal with a high proportion of complicated cases (the normal cases being confined at home) the incidence may be as high as 10 per cent. Stander (quoted by Kerr and Moir [1949]) quotes the incidence at the New York Lying-in Hospital as 2.4 per cent. In 1954 the incidence at the Winnipeg General Hospital was 2.7 per cent.

Indications

During the past 25 years Caesarean Section has become a very much safer operation for both mother and child. Improved surgical technique, improved anaesthetic technique and agents, blood transfusion and discovery of the antibiotic drugs have all contributed to this increased safety and, as a result, the indications for the operation have been widened. In fact, when performed under favourable conditions by expert obstetric surgeons, Caesarean Section has been rendered so safe for the mother that it may be employed solely in the interests of the child. However, in spite of its increased safety, it is not an operation to be undertaken lightly—there must always be a good reason for it.

The accompanying table lists some of the commoner indications for Caesarean Section and their percentage incidence. These indications will now be considered individually.

	Liverpool*	Queen* Charlotte's	Lying-In* New York	Millard† Fillmore
Disproportion	54.3%	50.2%	40.0%	41.6%
Repeat C.S.	27.4%	4.2%	19.9%	26.7%
Toxaemias	6.5%	4.2%	7.6%	3.9%
Placenta Praevia	7.6%	6.9%	7.2%	3.9%
Cardiac Disease	4.3%	3.7%	1.9%	
Uterine Inertia	.....	2.1%	7.6%	5.0%
Malpresentations	.....	3.1%	3.4%	1.7%
Abruptio Placentae	.....	.....	5.9%	4.7%

Main Indications for Caesarean Section with Percentage Incidence
*Kerr, J. M. and Moir, J. C. (1949) Operative Obstetrics. Balliere, Tindall & Cox, London, 5th Edition — Page 509.
†McLean, L. F. et al (1950) Am. J. Obst. & Gynec., 60: 860.

1. Cephalo-pelvic Disproportion

In most recorded series between 35 and 50 per cent of Caesarean Sections are performed for cephalo-pelvic disproportion. This can seldom be determined definitely until after the patient has had a fair test of labour. This means that, even though from clinical examination and x-ray examination of the pelvis, cephalo-pelvic disproportion is suspected the patient is allowed to go into labour spontaneously at term. It is surprising how often the natural forces of labour will overcome what is thought to be obvious and gross disproportion. The progress of the labour is observed carefully and, after several hours of good contractions, it is often possible to say whether or not the head will pass through the pelvis. As Caesarean Section may have to be performed at the conclusion of a test of labour, rectal and vaginal examinations should be kept at a minimum so as to reduce the possibility of uterine infection.

Presented at the General Practitioners' Association, Dec. 14, 1955.

For the same reason, labour should not be allowed to continue too long after rupture of the membranes — a limit of 12 to 24 hours may be set, unless by then good progress has occurred and vaginal delivery seems probable.

Where there is definite evidence of gross pelvic deformity (and I repeat the word "gross") or where there is some added complicating factor it may be justifiable to perform elective Caesarean Section, i.e. a planned operation before the onset of labour. Examples of complicating factors are elderly primigravity, severe pre-eclamptic toxaemia, mal-presentation, heart disease, etc.

In connection with suspect disproportion I would like to introduce a word of warning. By all means, if you think it necessary have x-ray pelvimetry done, but don't act blindly and perform an elective Caesarean Section solely on an adverse radiological report! Unfortunately, the methods of measuring the pelvis are still inaccurate, and the radiologist cannot foretell the type or force of the uterine contractions. An x-ray report should be treated like any other special investigation and should take second place to careful clinical examination and observation. It may be most useful if labour does not progress satisfactorily, but, if labour does progress satisfactorily, an unfavourable x-ray report should be ignored. In the past, probably many unnecessary Caesarean Sections have been performed because of absolute acceptance of an x-ray report.

2. Previous Caesarean Section

In most series this is the second most common indication for Caesarean Section and if our indications for first sections become lax, the number of repeat sections is bound to increase.

I, personally, do not subscribe to the dictum "once a Caesarean, always a Caesarean," but I would not disagree with any practitioner who wished to perform a Caesarean Section on a patient who had had a previous section. Of course, if the indication for the first operation was a recurrent one, e.g. contracted pelvis, diabetes mellitus, etc., a second operation is mandatory. But, if the first operation was performed for an indication which may not necessarily recur, e.g. placenta praevia, prolonged labour, pre-eclamptic toxaemia etc., it may be justifiable, if conditions seem favourable, to allow a test of labour in a subsequent pregnancy. Such a test of labour should be supervised very carefully and preparation should be made so that immediate operation can be performed should there be any evidence of impending rupture of the uterus or of delay in the progress of the labour. If these conditions cannot be met, it is much safer, for the patient, to perform elective repeat Caesarean Section.

3. Placenta Praevia

Caesarean Section has now become the treatment of choice in the majority of cases of placenta praevia. This is because of its safety for the mother, and the tremendous increase in foetal survival which has resulted from its use. New radiological techniques allow visualization of the placenta in many cases, and, where the placenta can be shown to be praevia and bleeding is marked, immediate Caesarean Section is usually indicated. If the bleeding is only slight in amount, the patient should be kept in hospital until about the 37th week when a vaginal examination is made in the operating room with preparation made for immediate Caesarean Section, if necessary. If placenta praevia of any marked degree is discovered, Caesarean Section should be proceeded with. If a minor degree of placenta praevia is discovered, further management will depend on the circumstances—e.g. the state of the cervix and whether the patient is a primigravida or a multigravida. The membranes may be ruptured or nothing may be done and spontaneous onset of labour awaited or Caesarean Section may still be considered the safest method of treatment.

There is some difference of opinion as to which type of operation should be performed where the placenta is praevia and anterior thus underlying the operative site in the lower uterine segment. I personally prefer to perform a lower segment operation, even under these conditions, but practitioners with a limited experience of the lower segment operation may find it much easier to perform a classical operation.

4. Uterine Inertia and Prolonged Labour

In cases of prolonged labour very often the difficulty is not how to end the labour, but when to end it. Caesarean Section plays a very definite part in the treatment of such cases. As a rule, as long as the membranes remain intact, the labour should be allowed to continue — the patient, of course, being given appropriate supportive treatment. The morbidity rate of Caesarean Section increases with the length of time the membranes have been ruptured before it is performed and, therefore, if definite progress does not occur following rupture of the membranes, operation should not be delayed too long. Each case must be considered on its merits and one cannot lay down a definite rule—however, I feel 24 hours after rupture of the membranes should be considered an upper limit.

5. Pre-eclamptic Toxaemia and Eclampsia

Caesarean Section plays little part in the management of these conditions—surgical induction of labour and vaginal delivery is preferable. It may however, be indicated in certain cases—for example in a severe case which does not respond to the usual methods of treatment, and when it is felt rapid emptying of the uterus is desirable or where there is some complicating factor, such as a mal-presentation or suspect dis-

proportion, which makes surgical induction of labour undesirable.

6. Abruptio Placentae

This condition too is usually best treated by conservative measures, that is sedation followed later by artificial rupture of the membranes. However, some of the worst cases of the concealed variety, the so-called "Couvelaire" uterus, are saved by Caesarean Section, often followed by hysterectomy, who would almost certainly be lost with any other method of treatment.

7. Diabetes Mellitus

The control of diabetes by insulin has greatly improved the outlook for the mother, but has not, by itself, resulted in a corresponding decrease in the foetal death rate. The majority of cases are treated by elective Caesarean Section at about the 37th week of pregnancy, though in certain cases, especially multipara, where the baby does not seem unduly large and conditions are favourable, artificial rupture of the membranes may be employed.

8. Cardiac Disease

In the management of pregnancy complicated by heart disease a high Caesarean Section rate is associated with a high maternal death rate. In the absence of any other obstetrical complication the patient should be allowed to go into labour spontaneously. Only in cases where there is some other complication or where there is cardiac failure with no response to medical treatment should Caesarean Section be considered—and the outlook for the latter type of case is very grave no matter what method of delivery is employed.

9. Miscellaneous

There are many other conditions, too numerous to list completely, which, on occasion, are best treated by Caesarean Section. Mal-presentations, e.g. breech, brow, face, transverse lie, especially in a primigravida, may sometimes require abdominal delivery. Prolapse of the cord with a living foetus in the presence of an incompletely dilated cervix usually requires Caesarean Section. Tumours obstructing labour, e.g. fibromyomata or ovarian tumours, may necessitate delivery by Caesarean Section.

In many cases there is no single clear cut indication for the operation. There may be a number of factors present, no one of which, in itself, is sufficient indication for a section, yet when all are considered together indicate Caesarean Section as the best method of delivery. For example, the patient may be a primigravida in the late thirties with a breech presentation and a large baby 2 weeks overdue or with a moderate degree of pre-eclamptic toxemia, a high free head and suspect disproportion. Thus, in any given case a decision as to the method of delivery can only be made after careful assessment of all the factors involved.

Contra-Indications

Today there are no absolute contra-indications to Caesarean Section. Formerly it was not performed if there was any evidence of uterine infection or if the patient had been in labour over 24 hours with the membranes ruptured, or if there had been extensive vaginal manipulations. The discovery of the antibiotic drugs has altered this concept, though in such circumstances vaginal delivery is still to be preferred.

Since one of the aims of Caesarean Section is to produce a living baby, it should not be performed if the foetus is dead or is known to have an abnormality incompatible with life. Exceptions to this may be necessary in rare cases of gross pelvic deformity and in some instances of abruptio placentae and central placenta praevia in which rapid control of bleeding is necessary. A living hydrocephalic foetus is not an indication for Caesarean Section — the head can be aspirated either per vaginam or suprapubically with a lumbar puncture needle.

Surgical Technique

There are five methods of abdominal delivery:

1. The classical Caesarean Section. In this a vertical incision is made in the midline of the uterine body or upper segment.

2. The lower uterine segment Caesarean Section in which the incision is made in the lower segment or in the cervix. Various types of incision have been described—vertical, transverse, T-shaped, etc. This is a transperitoneal or intraperitoneal operation.

3. The extraperitoneal Caesarean Section, in which an extraperitoneal approach is made to the lower uterine segment. Its main use is in infected cases and it is advocated enthusiastically by some centres, where there is a high incidence of such cases.

4. The Porro operation, in which a supravaginal hysterectomy is performed after removal of the foetus.

5. The Portes operation, in which the uterus is left outside the abdomen for four weeks, or until it is sterile, before being returned to the abdomen. I have never known of a case in which this method was used.

Pre-Operative Operation

The skin of the abdomen should be prepared as for any abdominal operation. The bladder should be catheterized just prior to operation, and it may be useful to leave a catheter in the bladder and allow it to drain during operation. Whether or not any attempt should be made to disinfect the vagina is a moot point—most operators seem to be against any such disinfection and I favour this opinion. The foetal heart should be listened for (preferably by the operator himself) immediately prior to the skin preparation.

The Classical Operation

The abdomen is opened through a midline subumbilical incision. Remember to look out for the bladder when making the incision—if the patient has been long in labour it will be drawn up with the lower segment. The abdominal cavity is packed off with a wet pack on either side of the uterus. A vertical incision 5 to 6 inches long is made anteriorly in the midline of the uterus, care being taken to correct any dextro-rotation which may be present. The lower end of the incision extends to just above the utero-vesical reflexion of peritoneum. If the membranes are intact, one cuts down slowly until they bulge into the length of the wound, though if they are punctured accidentally it is of little consequence. The membranes are ruptured and the foetus delivered, usually by pulling out a leg and extracting it as a breech.

Following delivery of the child the uterus may be brought outside the abdomen and surrounded by warm, wet towels. The placenta and membranes are removed, generally by introducing a hand into the uterus and separating the placenta digitally, and the uterus is then massaged to help it contract firmly.

The uterine incision is then repaired. Most operators now use catgut, No. 0 or 1. I use 2, and sometimes 3 rows of continuous unlocked sutures followed by a superficial continuous locked suture to unite the wound edges. This usually ensures proper haemostasis. The uterus is then replaced, the omentum is brought down and tucked down behind it, and the abdomen is closed.

In about 40 per cent of cases the placenta occupies the anterior wall and will be encountered on making the uterine incision. In such a case, after making the incision, the placenta is separated from its attachment on one side, and a hand is introduced around its edge to reach a leg and extract the foetus.

Lower Uterine Segment Operation

The abdomen is opened and the abdominal cavity packed off as before. A Doyen type of retractor is placed in position to retract the lower end of the wound and the bladder. The loose peritoneum of the utero-vesical pouch is picked up and incised with scissors about 1 inch below its attachment to the uterus. The opening is then enlarged laterally, on either side, as far as is necessary. The lower flap is pushed well down off the lower uterine segment — this flap will carry the bladder with it and both may be tucked under the Doyen's retractor. I employ a transverse incision in the lower segment, placed as low down as possible. This is commenced in the midline with a scalpel, slowly incising the uterus down to the membranes or the foetal head. The index finger of each hand is then introduced into this opening and the incision enlarged by tearing the muscle fibres laterally. The Doyen's retractor is removed and then comes what is, in my opinion, the most difficult part of the operation, the delivery of the head. Various techniques have been described using the hand, Willett's forceps, the obstetrical forceps, one blade of the forceps as a vectis or various specially designed blades. I prefer to insert the hand below the presenting part, disengage it and rotate either the occiput or the face anteriorly. This brings the head into the uterine wound and, after removing the hand, it is delivered by pressure on the fundus. The remainder of the foetus is then delivered slowly and, after clamping and cutting the cord, it is handed to an assistant.

The edges and lateral angles of the uterine wound are then grasped in forceps, the special Green-Armytage forceps being very useful for this purpose. In addition to controlling blood loss this step outlines the wound edges and avoids the occasional error of suturing the upper edge to the posterior wall of the uterus. The placenta usually separates spontaneously and may be delivered by gentle cord traction or by inserting two fingers into the uterus.

The uterine incision is closed with 2 rows of sutures using a continuous suture of No. 0 catgut. Special attention must be given to the angles of the wound as it is here bleeding tends to occur. The peritoneum of the utero-vesical fold is then united and the abdomen closed.

Let us now consider the advantages and disadvantages of the lower segment operation as compared with the classical operation. Most obstetric surgeons now employ the lower segment operation almost routinely, though there are a few occasions when the classical operation is preferable.

Advantages of the Lower Segment Operation

1. There is less likelihood of rupture of the scar in a subsequent pregnancy or labour—it has been stated that 0.4 per cent of lower segment scars rupture as compared with 4 per cent of classical scars. This is because the lower segment wound is quiescent after delivery when healing is taking place, it is easier to repair as the uterine walls are thin, the placenta is less likely to be implanted on it in a subsequent pregnancy, and it is situated in the non-contracting portion of the uterus.

2. The wound can be easily and completely covered with peritoneum, thus preventing intraperitoneal adhesions.

3. By reasons of the site of the wound and the fact that it is covered with peritoneum it is much safer if any infection should be present.

4. The patient has a better convalescence than after the classical operation.

Disadvantages of the Lower Segment Operation

1. Technically it is a slightly more difficult operation to perform.

2. There is more risk of damage to neighbouring structures, e.g. bladder and ureter.

3. During extraction of the foetus the uterine incision may be torn further, making proper closure more difficult.

Mortality

1. Maternal — Caesarean Section has now become a comparatively safe operation for the mother and many large series have been reported without a single maternal death. The mortality rate tends to rise with the length of time the patient has been in labour and, of course, it varies with the indication for which the operation was performed. Marshall (1955) reported a mortality rate of 0.12 per cent when lower segment operation was performed within six hours of the onset of labour, but this rose to 2.5 per cent when labour lasted more than 48 hours. In most recent series the maternal mortality rate is less than 1 per cent and such series inevitably include some very poor risk cases which adversely affect the rate.

2. Foetal—It is common belief that Caesarean Section is a certain method of obtaining a living child, and some authors have attempted to prove that delivery by Caesarean Section is safer for the baby than is vaginal delivery. Such statements are dangerous and may lead to an unwarranted increase in the Caesarean Section rate. In some centres the neonatal mortality rate following Caesarean Section is two or three times that following vaginal delivery. This applies especially to premature babies as there is a much higher incidence of hyaline membrane disease in such babies following Caesarean Section as compared with vaginal delivery.

Sterilization Following Caesarean Section

There is a popular misconception that a patient must only have 2 or 3 Caesarean Sections. Many patients have had 5 or 6 or even more sections without harm and, where religious views have to be considered, there can be no question of sterilization. However, where religious views do not have to be considered, it is probably undesirable that a woman should have innumerable Caesarean Sections as there is an increased risk of rupture of the scar during each pregnancy and each operation creates a greater risk than would vaginal delivery. Most obstetricians will consider sterilization at the second section, if the patient and her husband request it, and will advise it at the third section. As McLean et al (1950) have stated, it should be considered at the second operation, usually performed at the third operation, and almost invariably performed at the fourth operation.

Conclusion

While Caesarean Section is becoming safer for both mother and foetus, it should not be undertaken lightly. The Joint Commission on Hospital Accreditation insist that a consultation be obtained prior to a first Caesarean Section, and this is to try to prevent unnecessary or unwarranted operations.

Where Caesarean Section is indicated the lower segment operation is generally much to be preferred to the Classical operation.

Caesarean Section should not be looked upon as an easy way out of a problem for obstetrician, mother and baby. The risk of maternal death from ileus, infection or embolus is greater following Caesarean Section than following vaginal delivery. Although the baby is more likely to be born alive following Caesarean Section it stands a much greater chance of neonatal death.

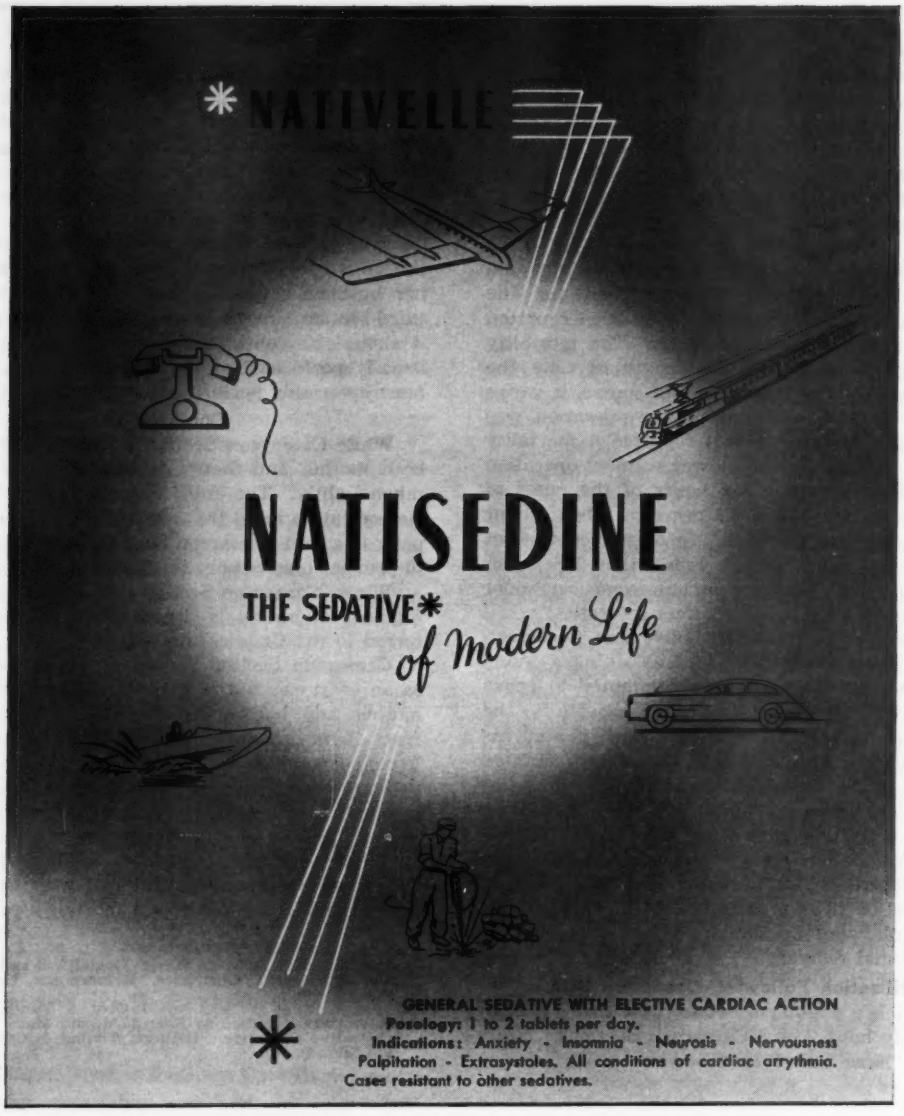
What we should strive for is the lowest possible Caesarean Section rate combined with the lowest possible maternal and foetal mortality rates.

References

Marshall, C. McI. (1955) in British Obstetrical and Gynaecological Practice. Obstetrics. Heinermann, London., 1st Edn., P. 993.

McLean, L. F. et al (1950) Am. J. Obst. & Gynec., 60: 860.

Stander (1949). Quoted by Kerr J. M. and Moir, J. C. Operative Obstetrics. Balliere, Tindall & Cox, London, 5th Edn., P. 506.


*NATIVELLE
NATISEDINE
THE SEDATIVE* of Modern Life
GENERAL SEDATIVE WITH ELECTIVE CARDIAC ACTION
Posology: 1 to 2 tablets per day.
Indications: Anxiety - Insomnia - Neurosis - Nervousness
Palpitation - Extrasystoles. All conditions of cardiac arrythmia.
Cases resistant to other sedatives.

* *Also from Nativelle...*

DIGITALINE NATIVELLE recognized the world over as the yardstick of digitalis therapy.

OUABAINE ARNAUD International Standard (National Institute for Medical Research, London).

Lougier

Over half a century of devotion to medical and pharmaceutical advance in Canada.

Cardiology

The Physiologic Approach to Cardiovascular Problems

David H. Stein, M.D., F.R.C.P. (C)
Mall Medical Group, Winnipeg, Manitoba

Until about a decade ago, most of our knowledge of heart disease was based on anatomic studies. Correlations were made between altered structures noted at autopsy and clinical signs and symptoms present during life. The limitations of such an approach became increasingly evident with the advent of operative techniques for many of the congenital and acquired heart lesions. There arose a need for direct data obtained from patients during life, in order to better assess the nature and extent of various heart diseases.

The cardiac surgeons deserve a major share of the credit for the many recent advances in our knowledge of the cardiovascular system. They provided both the need and the impetus for a new and direct approach to this field. The "physiologic" aproach, whereby direct measurements and observations are made on living patients, has dominated the cardiovascular scene for more than ten years. This type of approach has been responsible for most of the outstanding recent contributions to our knowledge in this field. Our diagnostic abilities as well as our comprehension of the pathologic physiology of many heart diseases have been greatly improved by the adjunctive utilization of the various procedures which have recently been established. In addition, these same procedures have opened completely new avenues of research.

The clinician of today has an added burden in the handling of patients with heart disease. He is frequently called upon to determine the "operability" of many such patients. Often, the decision cannot be made without recourse to several of the various physiologic studies now generally available. Therefore, it behooves him to become familiar with the nature of these studies and the type of information they provide, since many of the procedures can now be performed with relative ease. In addition, these studies are often helpful in order to evaluate post-operatively, the results of surgery.

A brief review of several of the well established physiologic studies is presented below. These are procedures now widely in use, particularly for diagnostic purpose.

Cardiac Catheterization

Forsmann, in 1929, demonstrated that the right side of the heart could be safely catheterized via an antecubital vein. He is reported to have performed this feat on himself nine times. However, his main objective was to establish a method for the rapid injection of radio-opaque dye into the heart for x-ray purposes.

In 1941, Cournand, in the U.S.A., introduced right heart catheterization as an important diagnostic method[1]. Since then, virtually all university centres have set up catheterization laboratories, and the technique has become quite standard.

Semi-rigid, radio-opaque catheters can be introduced via a peripheral vein, under direct fluoroscopic vision, into the right side of the heart and the pulmonary artery. Local anesthesia is generally all that is required. In infants, the femoral vein may be used. This procedure has been safely performed in infants of several months as well as in elderly patients. The risk involved in cardiac catheterization is extremely small when performed by an experienced team. Ventricular ectopic beats are commonly noted as the catheter passes through the tricuspid valve. These usually cease immediately on withdrawing or advancing the catheter. Venospasm may also be noted during the procedure.

Data of the utmost importance have become available to the cardiologist through cardiac catheterization:

A. Blood samples may be withdrawn from the various heart chambers and analyzed for oxygen content. Left to right shunts are easily diagnosed in this manner by detecting a higher oxygen content in the chamber receiving the shunted blood. In addition "true" mixed venous blood may be obtained from the pulmonary artery for oxygen analysis. This allows the cardiac output to be determined by the Fick principle, utilizing the oxygen consumption and the arterial-venous oxygen difference.

B. Pressures may be recorded from within any of the chambers entered by the catheter. The outer end of the catheter is connected with a strain gauge or electromanometer whose output is fed into a recording galvanometer.

The diagnosis of pulmonary stenosis may be made entirely from the characteristics of the pressure recording from the pulmonary artery and right ventricle. Figure 1 illustrates a normal pressure recording compared with one from a patient with pulmonary stenosis.

The recording of intracardiac pressures at the operating table has been of the utmost value for the cardiac surgeon in correcting pulmonary and aortic stenosis. Only when the systolic pressure gradient across the valve in question has been abolished, as shown by the pressure recording, can the surgeon be satisfied that his efforts have been adequate.

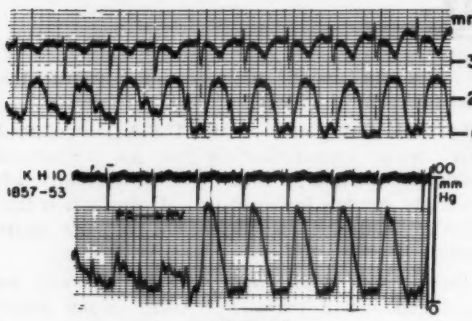


Figure 1

Records of pressure obtained during withdrawal of the catheter tip from the pulmonary artery into the right ventricle.

The upper recording is from a normal patient showing the pulmonary artery and right ventricular pressures. Note that the systolic pressure is the same in both.

The lower recording is from a patient with pulmonary stenosis. Note the systolic pressure gradient between the right ventricle and pulmonary artery. This type of pressure recording is pathognomonic of pulmonary stenosis. (In each case, an E.C.G. lead is shown above the pressure recording.)

Correlations of right ventricular pressures with E.C.G. diagnosis of right bundle branch block or right ventricular hypertrophy have been made[2]. These studies have made E.C.G. interpretations more accurate and dependable.

C. A catheter with an electrode tip may be used as the "exploring electrode" in order to obtain endocardial electrocardiograms from the interior of the heart. In this way, our knowledge of the electrical activity of the heart has been enhanced.

D. By injecting Evans blue dye through the catheter into the various heart chambers and detecting this dye by means of an oximeter on the ear or from arterial blood (usually the femoral or radial artery) "dye curves" are obtained. These are extremely helpful in the localization of right to left shunts (see below).

E. Cardiac catheterization has made possible the study of the effects of various drugs, gases and other agents on cardiac outputs and intracardiac pressure.

F. Catheterization of the coronary sinus entering the right atrium allows calculations of myocardial metabolism to be made, as the blood in the coronary sinus represents a considerable portion of the venous return from the myocardium[3].

Oximetry

Development of an absolute reading oximeter has made possible the direct measurement of the relative concentration of oxyhemoglobin and reduced hemoglobin in a blood sample drawn through it[4]. Utilizing such a cuvette oximeter, serial samples of blood from the various heart chambers may be rapidly analyzed and a left to right shunt detected with relative ease in a very short space of time.

The same cuvette oximeter may be used as a device for detecting concentrations of Evan's blue dye in the blood. Blood from an artery is allowed to flow through the instrument when the dye is injected via the catheter into the various chambers of the right side of the heart. The resultant "dye curves"[5] recorded from the oximeter serve to differentiate between dyed blood that has passed through the normal route from the site of injection, and blood that has by-passed the lungs via a shunt. In this way, right to left shunts may be localized. Figure 2 demonstrates the various dye curves.

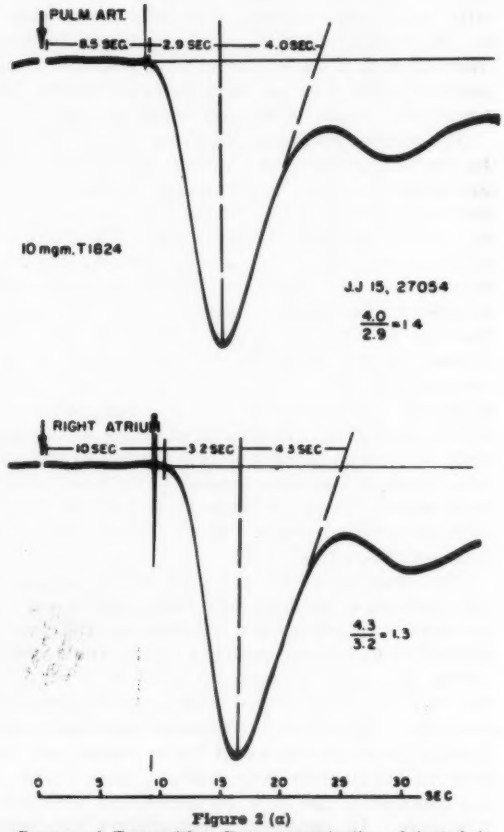


Figure 2 (a)

Curves of Evans Blue Dye concentration detected in arterial blood (femoral artery) with the cuvette oximeter following injection of the dye into the various heart chambers through the cardiac catheter.

The first two curves were obtained from a patient with no heart disease and are entirely normal. Note the appearance time of the dye when injected in the pulmonary artery, was 8.5 seconds. The appearance time from the right atrium was 10 seconds. (The various broken lines and figures present do not pertain to this paper.)

Arterial Catheterization

A small plastic catheter can be introduced into the aorta via a thin-walled No. 18 needle in a femoral or brachial artery. Pressure measurements have been recorded from the aortic arch from which the functional status of the aortic

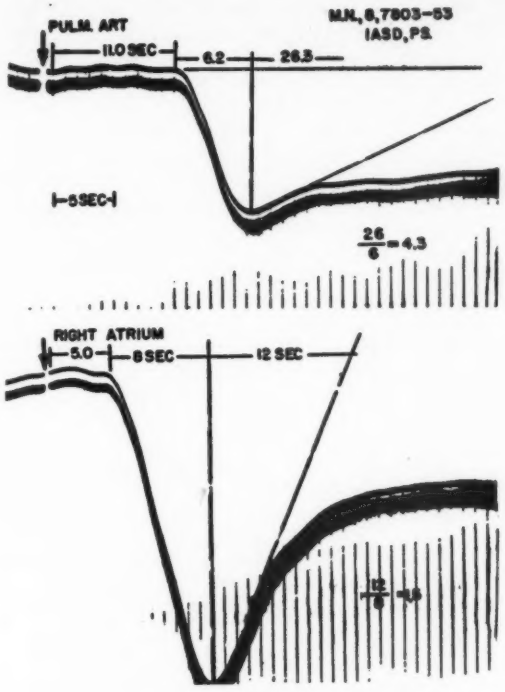


Figure 2 (b)
Note that in the second case, (inter-atrial septal defect with right to left shunt), the dye injected into the pulmonary artery took 11 seconds to appear. When injected into the right atrium, it appeared at the femoral artery in 5 seconds — because of the shunt which by-passed the lungs.

valve may be deduced. The initial rate of pressure rise recorded from the aortic arch has served as a reliable guide to the severity of aortic stenosis as determined by direct measurements across the aortic valve at surgery.

Other Measurements

The left atrium has been entered by a special No. 16 needle directed through the thoracic wall from the left paravertebral region of the dorsal spine[6]. By introducing a catheter through this needle, pressure recordings have been made from the left atrium and ventricle as well as the aorta. The pressure recordings have often been very helpful in evaluating patients with mitral and aortic valvular disease[7].

Summary

A brief description of some of the physiological measurements now available to aid the clinician in his evaluation of patients with heart disease, has been presented. The facilities and technique for accurate measurements of abnormal function that are now available, have greatly advanced our understanding of many problems. This type of approach will undoubtedly result in the continued development of new techniques and the establishment of new procedures for studying these problems. As these are put to effective use, further advances in our knowledge may be anticipated.

References

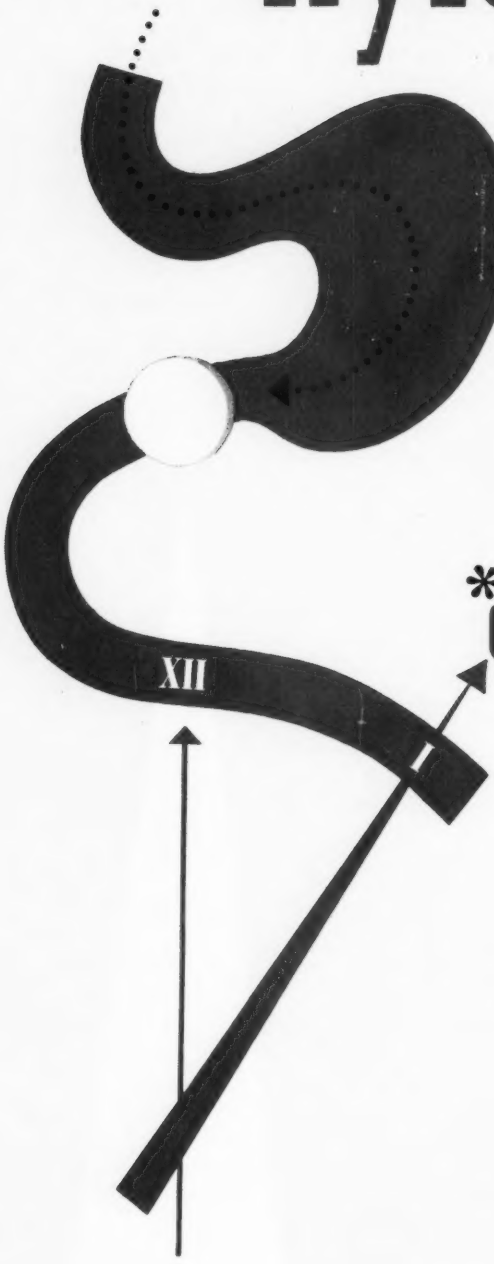
1. Cournand, A. and Ranges, H. A.: Catheterization of the Right Auricle in Man. Proc. Soc. Exper. Biol. & Med., 46: 462 (March) 1941.
2. Fowler, N. O., Noble, N. J., Giarratano, S. J., Mannix, E. P.: The Clinical Estimation of Pulmonary Hypertension Accompanying Mitral Stenosis. Am. Heart Jour., 19: 237 (Feb.) 1955.
3. Bing, R. J., Siegel, A., Ungar, I., Gilbert, M.: Metabolism of the Human Heart. Amer. Journ. of Med., XVI: 504, 1954.
4. Wood, E. H., Geraci, J. E.: Photoelectric Determination of Arterial Oxygen Saturation in Man. J. Lab. & Clin. Med., 34: 387, 1949.
5. Swan, H. J. C., Wood, E. H.: Localization of Intracardiac Defects by means of Dilution Curves Obtained following Injection of Dye into the Heart and Great Vessels. Proc. Staff Meet. Mayo Clinic, 28: 95-100 (Feb.) 1953.
6. Bjork, V. O., Malmstrom, G., Uggla, L. G.: Left Auricular Pressure Measurements in Man. Ann. Surg., 138: 718 (Nov.) 1953.
7. Wood, E. H. et al: Proc. Staff Meet. Mayo Clinic, 31: 120-1937 (Mar. 7) 1956.

"Hylenta"

CD*

Tablets
No. 888

(500,000 I.U. Penicillin G Potassium)



*Controlled Disintegration

Ensures penicillin absorption from the upper small intestine

One "Hylenta" CD* Tablet produces a blood level of 1.73 units per cc. *within one hour.*

Three daily maintain much higher levels *during most of the 24-hour period* than 300,000 I.U. Penicillin G Procaine given intramuscularly.

Ayerst, McKenna & Harrison Limited,
Montreal

Ayerst

"Premarin" MT

WITH METHYLTESTOSTERONE

In 267 patients,* postpartum breast engorgement and lactation were suppressed in 96.2 per cent, without nausea, vomiting, breast abscess, excessive lochia, withdrawal bleeding, or virilization. One particular advantage noted was the absence of mental depression, which usually occurs about the fourth day of the puerperium.

**Fiskio, P.W.. General Practitioner 11:70 (May) 1955.*

Ayerst, McKenna & Harrison Limited, Montreal

Ayerst

74S

Medicine

Clinical Experience with Tem as a Therapeutic Agent

Paul Green, M.D., F.R.C.P. (Can.)
and
William Bennett, M.D.

TEM, which is the abbreviation for triethylene melamine, is a potent radiomimetic drug. Previously only available for clinical trial, it has recently been released on the general market. Through the courtesy of the Lederle Company who have supplied the chemical, we have had an opportunity of treating 37 cases over the past few years. Our experience might be of interest and use to those who might wish to use this drug in their own cases.

How did this drug come into use? During World War I Krumbhaar noticed that exposure to mustard gas produced a neutropenia, and because of this observation the effects of the mustards on lymphoid and hematopoeitic organs was investigated. As a result of these investigations nitrogen mustards came into use in the treatment of the lymphomas and some malignant diseases. It was shown that the action of this group depended on two or more haloalkyl sidechains, and in attempting to explain how these drugs worked Goldacre, Loveless, and Ross suggested that they might do so by these sidechains combining with nucleoprotein of contiguous chromosomes, one arm, as it were, on each chromosome, and in this manner binding them so that they were unable to separate during mitosis. Now a group of chemicals had been used in the textile industry for some years in just this manner; to "bind" rayon fibers and so it was a reasonable step to use such chemicals in the treatment of lymphomas. One member of this group of chemicals was TEM, and it was found that it did indeed have a mustard-like effect. Subsequently it has been shown that the explanation of the action of these drugs by "binding" is untenable, so that correct reasoning based on a false premise has provided this new group of drugs.

The published reports of several authors suggests that the action of TEM is similar to that of nitrogen mustard. Krantz[9] finds that it is interchangeable with nitrogen mustard. Its chief advantage over nitrogen mustard is the fact that it is effective when given my mouth, whereas nitrogen must be given parenterally. It also has less marked side-effects than does mustard (less nausea, and constitutional upset[14].)

From the Department of Medicine, Deer Lodge Hospital, Winnipeg, Man.

Mode of Administration

TEM is supplied in 5 mg. tablets. Some observers have used enteric coated tablets[3]. Various initial dosages and various dosage schedules have been advocated, but because of the dangerousness of this drug we agree with Rundles[11] that the initial dose should not exceed 2.5 mg. and that probably the maximum dosage should not exceed 25 mg. given over 1-3 week period.

Our schedule was to give the drug, usually in 2.5 mg. dosage, to the patient in the fasting state, with water and two grams of sodium bicarbonate. Nothing further was taken by mouth for a two hour period after the drug had been given. This dosage was repeated every 2-5 days until the maximum dose was consumed. The white cell count and platelets were carefully followed and the drug discontinued if depression of these elements was noted. It was necessary to move very gingerly particularly in chronic lymphatic leukemias, in people who have advanced disease, and in patients previously treated with x-ray, as they appear to be very sensitive to the drug.

Maximum depression of the bone marrow tends to occur 10-14 days after the drug has been given[8] and so the therapist is in the position of having dropped his bomb, without knowing how much devastation it produced for this length of time.

Results

Group 1— Diseases considered malignant, other than the lymphoma group.

Our experience with this type of case was very disappointing. Two advanced malignant melanomas with widespread metastases were treated; both were very advanced cases, and no effect was noted in either case. One case of bronchogenic carcinoma with superior mediastinal obstruction was treated. After 10 mg. had been given, clinical and x-ray evidence of decrease in size of the tumor was noted. However, the effect was transient, lasting a matter of two weeks. Gilhorn et al[8], has reported improvement in cases of bronchogenic carcinoma treated with TEM. Improvement was transient, and was much inferior to local radiation therapy.

A case of synoviosarcoma which had metastasized to the lungs ten years after removal of the primary tumor was also treated. Although pain decreased following TEM, no effect on the metastases, as indicated by x-ray examination, was noted. The tumors responded well to radiation therapy.

Wilson[15] treated two carcinomas of the liver and found no response to TEM or nitrogen mustard. 26 inoperable carcinomas of the ovary were

treated with TEM[16]. 25% showed slight or transient improvement. From these, and from other reports, as well as from our own limited experience, we feel that TEM has no established place in the treatment of malignant disease, and is much inferior to radiation therapy.

Group 2. Hodgkin's Disease — Hansen found that 8 out of 12 cases improved on TEM therapy. Meyer et al[10] noted remissions induced in Hodgkin's disease were of short duration, and often became refractory after a few courses. Burtner et al[2], giving an average total of 30 mg., noticed that the first evidence of improvement occurred about the ninth day after the initial dose. Remissions lasted, on the average, about 30 days—the earlier in the course of the disease the better the response.

Our experience with 14 cases of Hodgkin's disease has been identical. Cases that were not far advanced and who were in comparatively good health responded well. Remissions induced, however, tended to last a disappointingly short time. With repeated courses responses tended to be less complete, and to last a shorter time. Giving maintenance dosage of the drug over a continuous period in three cases did not appear to make much difference, and refractoriness developed.

Advanced cases that had visceral involvement, fever, and were obviously on the downhill path responded either not at all or with discouraging evanescence to TEM. Response to nitrogen mustard, however, was no better. Response to radiation was superior, and in only one case did x-ray fail to produce a remission where TEM did, for a matter of three months.

Group 3. Lymphosarcoma, Acute Leukemia, Myeloma, Reticulum-cell Sarcoma — Two cases of reticulum sarcoma failed to show any response, two cases of lymphosarcoma also were not impressive in their response. One case of acute leukemia, monocytic in type, did not respond. The literature is in agreement on the lack of utility of this drug in this group of cases.

Group 4. Giant Follicular Lymphoma—By and large, this group showed good responses to the drug. One case diagnosed on lymph node biopsy as a giant follicular lymphoma failed to respond to the drug. At postmortem, however, he was histologically not a giant follicular type and is included in group 3.

One of these cases signed himself out of hospital before completion of his course, and subsequently died out of the city. We have no details of this case.

Of the remaining three, one presented with large nodes, massive intra-abdominal masses, ascites, edema and pleural effusions. He had a dramatic response to TEM and was able to return to work for a three year period, during which time he required intermittent short courses of the drug. This case was complicated by the fact that he had had a gastroenterostomy some years before for perforation and hemorrhage from a duodenal ulcer. He also suffered from pulmonary emphysema. Steatorrhea developed later in the course of his disease, and much infiltration of the gut with tumor was present. He also suffered from progressive dyspnea, attributed to his emphysema. He died eventually, four years after the onset of his disease, with a ruptured pulmonary bullus. Postmortem disclosed extensive mediastinal and paraoartic node involvement with giant follicular lymphoma, in addition to visceral involvement of gut, liver, and spleen.

The second case was that of a young man who developed splenomegaly, and lymphadenopathy, which on node biopsy was, characteristically, a giant follicular lymphoma. He was very sensitive to TEM and developed marked neutropenia following a course of 15 mg. of the drug, which required admission to hospital. Following this, however, he gained thirty pounds in weight, and has felt well, with no evidence of recurrence 14 months later.

The third case presented with lymphadenopathy in his neck; splenomegaly, and rectal bleeding, and ascites. Biopsy of a lymph node was diagnosed as giant follicular lymphoma, and biopsy of a rectal tumor also showed the small cell infiltration of a lymphosarcoma. He had an excellent response to TEM, 20 mg. producing a complete remission with disappearance of ascites, nodes, splenomegaly and rectal tumor. At present he is still in remission some eight months later.

In this subdivision of the lymphomata, therefore, good remissions appear to be induced with small doses of TEM. This group, however, tends to be a comparatively benign group, and responds readily to most forms of therapy. The convenience of TEM where the disease is widespread would suggest that it has a place in the treatment of this type of disease.

Group 5. Chronic Lymphatic Leukemia — 10 cases of chronic lymphatic leukemia were treated with TEM. These are very sensitive to the drug, and great caution must be exercised in order to avoid damaging dosage. Two of these cases were advanced cases. In one the disease had been present for at least eight years and had been repeatedly treated with x-ray therapy. Latterly, however, it had become refractory to this therapy. TEM produced transient decrease in size of lymph nodes, and decrease in white cell count and elevation of hemoglobin. These remissions at first lasted 6-8 weeks; with progressive decrease of length of remission. Finally thrombocytopenia and neutropenia became marked, and he rapidly went downhill. Autopsy was not obtained. In this

case TEM was of dubious value, and might have been harmful.

Another advanced case, associated with rheumatoid arthritis, had a similar course, and was not benefited by TEM.

The remaining 8 cases are all still alive. The known duration of their disease varies from 1 to 7 years. Two of these cases now appear to be developing refractoriness to TEM, and some other form of therapy will be tried—probably radiation. The remaining six are still well controlled, in so far as hemoglobin levels, and size of swelling, and white cell counts by infrequent small doses of TEM.

We feel, therefore, that TEM is useful in the management of chronic lymphatic leukemia as long as one recognizes its potential danger; how sensitive these patients are to TEM and the eventual failure of the drug as the disease runs its course.

One further case was treated with TEM. This was the case of a woman with a pyremia of unknown origin, in whom no diagnosis had been made. She was eventually given 7.5 mg. of TEM in three doses on the assumption that this might be a lymphoma, although no evidence of such disease could be uncovered. There was a coincidental return of temperature to normal, and she recovered clinically completely. Three year follow-up has not brought to light any further explanation for her symptoms and she remains the enigma that she originally was.

Summary

TEM is a potent radiomimetic drug that is capable of producing severe damage to bone marrow, and also to the liver. It may be of use in the treatment of chronic lymphatic leukemia, in some cases of Hodgkin's disease, and in giant follicular lymphoma. It must be used with care and circumspection. Remissions can be induced in the disease with this drug, which tend to become shorter and shorter as refractoriness develops. One cannot "force" the drug, and as a rule, if small doses are not effective larger doses will most likely fail to be useful, at the best, and will produce further damage, at the worst. It would appear to be as effective as nitrogen mustard in most cases, and probably inferior to radiation therapy in many cases.

References

1. Jour. Amer. Med. Assoc., 152: 914.
2. Ann. Int. Med., 38: 1222.
3. Brit. Med. J., 1953, 1:59.
4. Arch. Int. Med., 91: 602.
5. Ibid, 92: 628.
6. Cancer, 6: 142.
7. Ibid, 6: 135.
8. Amer. J. Med., 3: 428.
9. Blood, 7: 729.
10. Acta Med. Scand. Suppl., 272:3.
11. Blood, 7: 483.
12. Klin. Wsch., 30: 527.
13. Arch. Int. Med., 87: 477.
14. The Pharmacological Basis of Therapeutics. Goodman and Gilman, 2nd Edit.
15. Ann. Int. Med., 41: 118.
16. Surg., Gyn. and Obstet., 101: 133.
17. Med. J. Austral., 1955, 1: 900.

Urology

Urinary Infection in Diabetes Mellitus

David Swartz, M.D., F.R.C.S. (Edin. & C)
Assistant Professor of Surgery (Urology), University of Manitoba

Urinary infection is a frequent and serious complication of diabetes mellitus. Certain basic characteristics of diabetes mellitus predispose to urinary infection.

1. Glycosuria favors multiplication of pathogenic organisms in the urinary tract.

2. In patients with uncontrolled diabetes, excessive excretion of nitrogenous products of protein catabolism produces nutrient material for urea splitting organisms.

3. Ketonuria, a factor antagonistic to the growth of certain organisms in non-diabetic patients, fails to exert any apparent therapeutic effect on acute renal infections during diabetic acidosis.

Autopsy studies have shown that about 20% of patients dying of diabetes mellitus have infections of the upper urinary tract while in only 4% of people dying from all causes is this same condition present. Further studies have shown that only about 6% of patients with diabetes are known to have had urinary infections during life. Such a discrepancy cannot be accounted for on the basis of terminal infection alone.

There are certain factors in diabetic patients that militate against an early diagnosis of urinary infection. Urinary infection in the diabetic is often overlooked because of the infrequency of clinical symptoms. This may be accounted for by:

1. Sensory disturbances associated with diabetes: A poorly treated diabetic can develop diabetic neuritis very early in the course of this disease. Such a development is characterized by lack of pain, due to loss of bladder sensation. Cystometric studies have shown that the majority of these patients have a greater than normal bladder capacity.

2. The sedative action of ketonuria upon the bladder mucosa.

3. The diabetic who has had polyuria for years does not see a warning signal in increased frequency and may harbor an infection long before it is detected.

In order to determine the incidence of asymptomatic bacteruria, Harrison and Bailey[1] took a group of 50 unselected diabetic patients and compared them with another group of patients of a similar age distribution in whom diabetes was not present. Bacteria were present in the urine of 27 diabetic patients, while in the non-diabetic group bacteria were demonstrable only in 4. Though the significance of bacteria as the only abnormality in the urine may well be questioned, the added presence of pyuria means that invasion of tissues by pathogenic organisms has taken place. The fact that pyuria was found in ten of the diabetic patients and in only two of the non-diabetic group becomes specially significant. Thus bacteruria was six or seven times commoner in the diabetic than in the non-diabetic patient, and pyuria was five times commoner in the diabetic than in the control group. These facts indicate that many patients with urinary infection go undetected until destructive renal lesions have formed or until discovered at autopsy. The early detection of abnormal urinary findings is therefore of utmost importance in order to prevent the late devastating effects which in so many cases have proved fatal.

Routes of Infection

1. Hematogenous

Consequent upon the frequency of infection of the skin, diabetic patients have a higher incidence of septicaemia particularly due to organisms of the **staphylococcus group.** The frequency of renal cortical abscess in such septicaemias is striking. Local susceptibility may be caused by glycogen deposits in the renal tubules. The perinephrium may also become involved.

2. Ascending

This type of infection may involve the collecting system alone—pyelitis, pelonephritis, etc., or may also effect the parenchyma (necrotizing papillitis). The bacillary groups preponderate in this type of infection.

Bacteriology

B. Esch. Coli—is the commonest offender.

Staph. Albus—is often found but may be a non pathogenic inhabitant or contaminant.

Staph. Aureus—non hemolyticus.

Staph. Aureus—hemolyticus.

Enterococcus.

Streptococcal groups—not so common.

Friedlander bacillus (K. Pneumoniae) — more frequent than supposed. The virulence of this organism is conditioned by the amount of capsule formation. It has been demonstrated that media with 0.3% glucose promote the maximum growth of the capsule. This may account for the frequency of this type of infection in diabetes and the difficulty with which it is eliminated.

Gas Forming Infections — Pneumaturia Pneumonephrosis[2]

Pneumaturia occasionally occurs in urinary infections of diabetes. The condition is manifested by interrupted urination which makes the patient aware of the passage of gas. The organisms causing pneumaturia are esch. coli, yeasts, B.-aerobacter aerogenes, B. aerogenes capsulatus. Gas may be formed not only in the urine but also in the tissues of the kidney (pneumonephrosis) and bladder in severe forms of infection.

Clinical Picture

The ease with which infections occur in the diabetic state would suggest that bacteria in the urinary tract are at least a potential hazard to be more seriously regarded in the presence than in the absence of diabetes. In the well controlled diabetic patient the majority of urinary infections are asymptomatic. Their significance lies in the part that they play when the patient's resistance is lowered by adverse conditions. When pyuria is present it may be assumed that the locus of infection has already been set up in the urinary tract and destruction of tissue has begun. Severe renal infection becomes manifest clinically by the appearance of fever, pain, hematuria, and pyuria.

A very serious and usually disastrous complication of acute pyelonephritis in diabetic patients is the condition known as renal papillary necrosis or necrotizing papillitis. This complication of diabetes, unless it is recognized in its early stages, or before it has involved both kidneys may lead to a fatal termination. The association of papillary necrosis and diabetes mellitus was first emphasized by Gunther[3] in 1937, who brought the condition to medical attention. More recent reports by Harrison and Bailey[1], S. L. Robbins et al[4], Robbins and Angrist[5], Muirhead et al[6], and others indicate the magnitude of this problem.

The clinical manifestations are divided into acute and sub-acute variety. The severity of the symptoms are dependent upon the extent of the lesion. In the acute variety there is rapid onset of illness with chills, fever, prostration, rapid pulse, leukocytosis and coma. Urinary findings consist of pyuria, hematuria and oliguria. Death is due to infection and uremia. In the sub-acute variety the patient gives a history of prolonged pyelonephritis with remissions and exacerbations. The diabetic state is difficult to control and the patient may lapse into coma. Ureteral colic may be a feature. This is produced by the passage through the ureter of pieces of necrotic tissue. The sudden development of severe diabetic acidosis, a rising blood urea and general deterioration portend the onset of the terminal state.

A great variety of bacterial agents have been isolated in these cases. The commonest offender is the Esch.coli. Other organisms noted in several

of the reported cases are staph. aureus, Klebs. pneumonaie (Friedlander's bacillus), B. proteus, alpha and beta streptococci and Pseudomonas aeruginosa. Welch and Prather[2] reported a case of pneumonephrosis complicating necrotizing papillitis. In their review of the literature of pneumonephrosis they state that a more complete case history and interpretation would no doubt have placed some of these cases in the same category as the one they have reported. In these cases the organisms mainly at fault were Esch. coli, Bacillus lactis aerogenes and Bacillus aerogenes capsulatus.

Numerous theories have been advanced regarding the pathogenesis of this lesion, and these have been adequately reviewed by Sheehan[7] (1937), Edmondson et al[8] (1947), and Robbins and Angrist[5] (1949). Most observers agree that the essential pathological feature of this disease is ischemic necrosis, anatomically localized to the renal papillae, but the mechanism whereby this is produced is under some doubt. In diabetics, pyelonephritis is a constant accompanying lesion of papillary necrosis, and where adequate clinical studies have been performed, it is evident that pyelonephritis actually precedes for some time the occurrence of papillary necrosis.

Early Diagnosis of Urinary Tract Infections in Diabetics

The delayed appearance of prominent symptoms demands careful interrogation as to mild dysuria, increased nocturia, bladder discomfort, pain in the flank, etc. Any systemic sign which indicates that the diabetic state has become worse suggests a careful search for urinary infection. Careful examination may lead to early discovery of phimosis, balanitis, prostatism, pruritis vulvae, cervicitis, etc. Frequent urinalyses including gram staining may disclose bacteruria and result in therapeutic measures before infection has obtained a foothold.

Principles of Treatment

It is necessary to gain complete control of the diabetic state. This is difficult to obtain if infection has gained the upper hand—hence the necessity for early diagnosis. All obstructive uropathy should be dealt with to ensure free and unimpeded urinary drainage. A high fluid intake should be maintained. A proper cultural survey will enable treatment of the offending organism with the most appropriate drug available.

These principles also apply to the treatment of renal papillary necrosis. The author[9] recently reported two cases of unilateral renal papillary necrosis with massive destruction and gross infection. The remaining kidney in each case was free of disease and pyelographically normal. Successful nephrectomy was performed in both cases. Bilateral lesions have proved fatal in the reported cases. That necrotic renal pyramids can go on to healing has been demonstrated in autopsied cases reported by Robbins and Angrist[5], Edmondson et al[8], and Gunther[3]. Tissue damage however has been so great as to negate the possible curative effects of this phenomenon.

Conclusion

The association of diabetes mellitus and urinary infection is not uncommon. Diagnosis during an early phase of the disease is often overlooked because of late appearance of clinical symptoms. The late devastating effects of urinary infection may be obviated by the observance of certain fundamental principles in the treatment of all diabetics. Renal papillary necrosis, an ischaemic necrotic lesion of the renal papillae is always associated with pyelonephritis in diabetics.

Bibliography

1. Harrison, J. H. and Bailey, O. T.: J.A.M.A., 118: 15, 1942.
2. Welch, N. M. and Prather, G. C.: J. Urol., 61: 712, 1949.
3. Gunther, G. W.: Munchen. Med. Wchnschy., 84: 1695, 1937.
4. Robbins, S. L. et al: New Eng. J. Med., 235: 885, 1946.
5. Robbins, E. D. and Angrist, A.: Ann. Int. Med., 31: 773, 1949.
6. Muirhead, E. E. et al: J.A.M.A., 142: 627, 1950.
7. Sheehan, H. L.: Lancet, 2: 187, 1937.
8. Edmondson, H. A. et al: Arch. Int. Med., 79: 148, 1947.
9. Swartz, David: J. Urol., 71: 385, 1954.

Abstracts from the Literature

Use of Serum Transaminase Levels in the Differentiation of Pulmonary Embolism and Myocardial Infarction. F. Goldstein, H. L. Israel and D. Seligson. N. E. J. of Med. 254: 746, (April 19) 1956.

The diagnosis of pulmonary embolism is often difficult. Myocardial infarction is often wrongly diagnosed in these instances, as the clinical and E.C.G. pictures may be rather similar. The authors introduce a new laboratory test which appears of value in distinguishing between the two diagnoses. Patients on whom the diagnosis of non-fatal pulmonary embolism was made were shown to have normal serum levels of glutamic oxalacetic transaminase when serial determinations were done over the first nine days of their illness. Patients with myocardial infarction have been shown almost invariably to have elevated levels of this enzyme. The presence or absence of clinical shock did not have any influence on the levels recorded.

This enzyme has been shown to be present in all human tissues with high levels in myocardial tissue and very low levels in lung tissue. Destruction of either of these tissues would release the enzyme into the blood stream—resulting in the above findings.

This determination, when available, would appear to be a helpful guide in evaluating patients with suspected pulmonary embolism.

David H. Stein.

♦

Treatment of Bleeding from Portal Hypertension in Patients with Cirrhosis of the Liver. C. Stuart Welch, John E. Kiley, Thomas S. Reeve, Edward O. Goodrich, Harold F. Welch, Albany, N.Y. New England Journal of Medicine, 254: 493, (Mar. 15) 1956.

Bleeding from esophageal varices produced by portal hypertension is due to extrahepatic portal vein obstruction in about 10% of instances and to intrahepatic portal vein obstruction due to chronic liver diseases in the majority of the remaining instances.

The authors report on a series of 50 consecutive patients with cirrhosis of the liver and portal hypertension who bled. 33 patients or 66% died in the hospital and 80% of this group died within a year of their hemorrhages. 76% of patients died with their first hemorrhage, 34% of patients who died after hemorrhage died in coma, and all who developed coma following hemorrhage died.

The mechanism of production of coma is believed to be due to ammonia intoxication initiated by the absorption of large amounts of blood in the intestine. Riddle, Kopple and McDermott have shown a relationship between high blood ammonia levels and the so-called meat-intoxication syndrome in dogs: that is, the syndrome produced by feeding meat to dogs with complete portal blood diversion into the vena cava. Authors have shown that the feeding of blood to a dog with an Eck fistula could raise the blood ammonia nitrogen to 900 microgm. per 100 ml. when death occurs.

The authors recommend three steps in the treatment of active bleeding from esophageal varices: the Sengstaken-Blakemore tube should be applied early to stop the hemorrhage; laxatives such as milk of magnesia should be fed hourly through the tube together with enemas to evacuate the blood from the bowel; medicines of empirical value such as sodium L-glutamate, cortisone and antibiotics may be given.

Though they have no statistical proof to substantiate an impression of high incidence of bleeding in patients with cirrhosis and esophageal varices, the authors advocate prophylactic porto-caval shunts be done in cirrhotics who are discovered to have varices. They point to the high mortality rate from bleeding (75% mortality after the first hemorrhage) and the relative low mortality rate of the procedure of porto-caval anastomosis (10 to 15%) as arguments in favor of their contention.

J. M. Kagan.

♦

Pituitary Radon Implant for Advanced Cancer. Forrest, A. P. M. et al. Lancet, 270: 399, 1956 (April 14).

25 Cases of advanced breast cancer, and 8 other cases of advanced cancer have been treated by inserting radon-seeds through the nostril and splenoidal sinus into the pituitary gland. All patients had metastases, and were unsuitable for radiotherapy. There was no operative mortality, and no deaths were due to treatment. 4 patients had visual defects from the treatment, 3 losing the sight of one eye, the other becoming blind. After sufficient radon, hypopituitarism develops in a few weeks. Cortisone replacement is required. Hypothyroidism occurred in some. Diabetes insipidu occurred frequently. Malignant melanoma, carcinoma of the uterus, and breast sarcoma were unaffected. Of the 25 cases of breast cancer, 7 were improved, 9 had no improvement, and 9 died of their cancer. Improvement consisted of relief of pain, recalcification of affected bones, shrinkage of soft-tissue deposits, and even reduction in size of the primary. The problem for the future is to devise a reliable method of destroying the pituitary gland completely without damaging the optic tract.

A. G. Rogers.

The Pattern of Occulsion in Atheroma of Lower Limb Arteries Correlation of Clinical and Arteriographic Findings: G. E. Mavor, British Journal of Surgery, 63: 352 (Jan.) 1956.

The author studied clinically and by arteriography 149 consecutive patients with atheroma and secondary thrombosis in lower limb arteries. Of these 124 had peripheral ischemia without gangrene, 31 bilateral; and 25 had peripheral gangrene.

Arteriosclerosis affects the medial coat of the artery in the form of sclerosis, and in its severe form, hyalinization and calcification. Thrombosis is not a feature of arteriosclerosis since the intima remains intact. Atherosclerosis affects the intima and subintima by cholesterol and fatty acid deposits. Intimal damage leads to secondary thrombosis which is regarded as an essential feature of the condition. The frequent association of the two is not unexpected, for atheroma is very common and arteriosclerosis in some degree universal. However, when arteriosclerotic arteries become occluded the process begins as an atheroma and ends by thrombosis.

In 88% the thrombosis was segmental. Because atheromas are often generalized and thrombosis localized the author believes in a local factor in the etiology of the latter; mechanical stresses producing subintimal hemorrhages as suggested by Lindbom (1950). The regions most frequently affected by the thrombosis were the level of the adductus magnus opening in the femoral, and just above the knee joint in the popliteal artery.

The extent of secondary thrombosis depends on the efficiency of the collateral circulation; a good collateral circulation means a short segmental thrombosis. Learmonth (1944) stated, the efficiency of the collateral circulation depends on the level to which it can refill the main-stem artery. Secondary thrombosis will propagate in either direction up to the first collateral of any consequence. Usually thrombosis is gradual and is manifested by tiredness and tightness of the affected muscle for weeks before total occlusion and intermittent claudication in the calf. In this series, 9% of occlusions were sudden and the thrombosis extensive, for the collateral circulation was not developed.

85% of the segmental thrombi were found in the femoral artery. The secondary thrombosis usually starts at the adductor magnus opening and propagates proximally toward the origin of the profunda femoris. Distal propagation appears to be stopped by the presence of the rectus femoris collateral. One out of 104 femoral thromboses developed gangrene. 11% had popliteal artery thrombosis. Propagation in the popliteal may extend in either direction though it tends to be limited in its proximal extension by a constant large muscle branch to the vastus. The prognosis appears to be worse with popliteal thrombosis; 2 out of 16 developed gangrene. Femoro - popliteal thrombosis represents a stage of failure of the collateral circulation and leads inevitably to gangrene. Femoro-popliteal thrombosis is manifested by resting pain, a burning pain in the foot, and this usually precedes or is accompanied by gangrene.

In the study of his series the author considered 59% as having a segmental thrombosis of an extent and location which would justify a local palliative surgical procedure: preferably, in the form of an arterial by-pass graft.

J. Kagan.

♦

Pyretotherapy and Subcutaneous Hexamethonium in the Treatment of Severe and Malignant Hypertension. By Pablo Thomsen, M.D., Ramon Ortuzar, M D., Fernando Goni, M.D., Christobal Espildora-Luque, M.D., and Leon Vial, M.D. Circulation, 13: 351, (March) 1956.

The results of a combination of pyretotherapy and hexamethonium usually administered subcutaneously were examined in 12 hospitalized subjects with severe and malignant hypertension. Criteria for diagnosis were principally: persistent diastolic hypertension above 115 mm.Hg.; eye ground changes; cardiomegaly and E.K.G. changes consistent with left ventricular strain.

The initial doses of hexamethonium produced prolonged drops of pressure, but habituation occurred with (in some cases) ultimate failure to influence blood pressure. Pyretotherapy at this stage caused prolonged renewed sensitization to hexamethonium. The effect was satisfactory even when fever was suppressed with antipyretics, suggesting that other mechanisms are involved. All cases showed improvement in the fundi, particularly marked diminution in hemorrhage. In only three cases was the electrocardiogram unimproved. In four there was reversion to a normal tracing. Renal function was not substantially improved and in three cases there was extrarenal azotemia consequent upon vomiting. There was usually definite improvement in symptomatology and in a few cases reversion of cardiac insufficiency although heart size was unchanged. The usual untoward features of both fever and hexamethonium therapy were noted, but combination of the two made it possible to reduce dosages and ameliorate these effects.

L. J. Cera.

In Lighter Vein

The Chief Sees a Case

J. D. Adamson, M.D.

He bursts imperiously into the ward followed and surrounded by his abject, pallid, white-clad satellites. These rotate, revolve and circulate about his person in orbits, the size and frequency of which vary in inverse proportion to seniority. He immediately spies a clinical clerk examining the protuberant abdomen of a frail, flushed female.

Much to his distress, the clinical clerk is surrounded and submerged by this pedagogical flood, and he responds with the appropriate suprarenal burst—he flushes, he sweats, he palpitates and he trembles. The chief takes possession of the pitiful bulging belly and concentrates the full force of his notorious clinical intuition upon it, to the complete exclusion of all other features. The following conversation ensues:

Chief: There's fluid in here! She has a rather curious color. Is this Haemachromatosis? Have you done a sugar tolerance test?

C. C.: No sir, but . . .

Chief: Is the spleen palpable? Haemachromatosis is rare, but you must watch for it. Very important!

C. C.: But . . .

Chief: The liver is palpable! Is it nodular? Mightn't it be hepar lobatum?

C. C.: No sir, . . . you see .

Chief: You know, my boy, that syphilis could cause this.

C. C. Yes sir, but, you see . . .

Chief: (Still clawing the unfortunate, defenseless, protuberance vigorously and dispassionately). Have you had a blood count? This could be Banti's disease.

C. C.: No, sir, but . . .

Chief: How can you expect to make a diagnosis unless you investigate these cases? There is lots of fluid here. Have you considered the possibility of Tuberculous Peritonitis? Is she febrile? What is her tuberculin test? Has she had a chest film?

C. C.: Yes sir, but she has . . .

Chief: Is it possible that she has a large ovarian cyst? Have you done a pelvic examination?

C. C.: No sir, but . . .

Chief: For Heaven's sake! Do you know anything about this case? Have you done any investigation to prove or disprove cirrhosis of the liver? Has she been a gin drinker? Has she vomited blood? Has she got haemorrhoids? Is there a caput medusae? What is her liver profile?

C. C.: I don't know, sir, but you see . . .

Chief: How do you know she has not got portal obstruction due to cancer of the pancreas, or secondaries in the portal canal. What is her icterus index?

C. C. (Showing signs of exophthalmos) Well, you see sir . . .

Chief: Ah, for Heaven's sake, what do you know about this case? Why can't you give us some real information about it? This woman might have almost any sort of abdominal cancer with carcinomatosis. Have you thought of that? Have you done anything to prove or disprove it? No!

C. C.: (The worm turns and snaps his teeth; all his internal secretions are surging and competing in his veins. Blood pressure 180/60, Pulse 160. Respiration, arrested. Extreme pallor and tremor of lips) "Gawdalmytie! I've been trying to tell you since you and our clowns came in here that this unfortunate woman has far advanced mitral stenosis and congestive failure! If you had listened to her heart before you tried to eviscerate her with your bare hands, you would have saved yourself a lot of stupid guessing!"

Chief: Thank you!

Good morning!

Carry on!

He departs. All satellites are revolving in smaller and swifter orbits still according to seniority. Then he says to the smallest orbit, "Very bright lad, that."

Preceptin
simple, effective control
Ortho

Manitoba Medical Association

Canadian Medical Association, Manitoba Division

Executive Offices: 604 Medical Arts Building, Winnipeg 1, Man.

Executive 1955 - 1956

R. Lyons, President
J. E. Hudson, First Vice-President
C. B. Schoemperlen, Second Vice-President
J. C. Rennie, Honorary Secretary
M. T. Macfarland, Executive Secretary
W. J. Boyd, Honorary Treasurer

Members Elected at Large

K. I Johnson, Pine Falls
F. H. Smith, Winnipeg
R. S. Harris, Virden
A. B. Houston, Winnipeg
G. T. McNeill, Carberry
A. E. Childe, Winnipeg

Representatives of District Societies

Winnipeg Medical Society: E. Stephenson, Winnipeg
Northwestern District: W. K. Hames, Hamiota
Central District: T. W. D. Miller, Oakville
Northern District: M. Potoski, Dauphin
North of 53 District: P. Johnson, Flin Flon
Brandon and District: J. A. Findlay
Southern District: J. C. Elias, Morris

Representatives

College of Physicians and Surgeons: Edward Johnson, Selkirk; C. B. Stewart, Winnipeg
Faculty of Medicine, University of Manitoba: E. F. E. Black
Health Officers Section, Manitoba Public Health Association: R. M. Creighton
Representative to C.M.A. Executive: R. W. Richardson
Committee on Economics: K. R. Trueman, Chairman

Manitoba Medical Review

Editorial and Business Offices: 604 Medical Arts Building, Winnipeg 1, Man.

Editor

S. Vaisrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P.

Business Manager

J. Gordon Whitley, Esq.

Editorial Committee

General Practice
A. G. Henderson, M.D., L.M.C.C.
A. R. Gordon, M.D.

History of Medicine
J. D. Adamson, M.D., B.A., M.R.C.P. (Edin.), F.R.C.P. (C.)

Publicity
L. A. Sigurdson, M.D., L.M.C.P., D.N.B.

Medical Faculty
L. G. Bell, M.D., L.M.C.C., M.R.C.P.S. (London), F.R.C.P. (Can.), Cert. Int. Med., R.C.P.S. (C.), F.A.C.P.
C. C. Ferguson, M.D., L.M.C.C., F.R.C.S. (C.), F.A.A.P.

Medical Research
J. P. Gemmell, M.D., M.R.C.P. (Lon.), F.R.C.P. (C.), L.M.C.C.
A. J. Glazebrook, M.R.C.S. (Eng.), L.R.C.P. (Lond.), M.B., B.S., U. Lond., M.D., U. Lond., M.R.C.P. (Edin.)

Medicine
R. E. Beamish, B.A. McMaster, M.D., L.M.C.C., B. Sc., F.R.C.P. (C.), F.A.C.P.
J. M. Kilgour, B.Sc., M.D., L.M.C.C., M.R.C.P. (Lond.), Cert. Int. Med., R.C.P.S. (C.), F.R.C.P. (Can.), F.A.C.P.
A. G. Rogers, M.D., L.M.C.C., F.R.C.P. (C.)

Clinical Pathology
P. T. Green, B.A., M.D., L.M.C.C., F.R.C.P. (C.)

Obstetrics and Gynecology
A. W. Andison, B.A., M.D., L.M.C.C., M.R.C.O.G., Cert. Obs. & Gyn., R.C.P.S. (C.), F.R.C.S. (C.)

Orthopedics
A. Gibson, M.A. (Edin.), M.B.Ch.B. (Edin.), F.R.C.S. (Eng.), F.A.C.S.

Paediatrics
H. Medovy, M.D., L.M.C.C., Cert. Paeds., R.C.P.S. (C.)

Pathology
D. W. Penner, B.A., M.D., L.M.C.C., Cert. Path., R.C.P.S. (C.)

Social
K. Borthwick-Leslie, M.D., L.M.C.C.

Surgery
R. L. Cooke, M.D., F.R.C.S. (Eng.), L.M.C.C., F.R.C.S. (C.)
S. S. Peikoff, M.D., F.R.C.S. (Ed.), F.R.C.S. (C), R.C.P.S. (C), Cert. Gen. Surg., F.A.C.S., F.I.C.S., L.M.C.C.

Liaison
R. H. McFarlane, M.D., L.M.C.C., Cert. Internal Med., R.C.P.S. (C.)

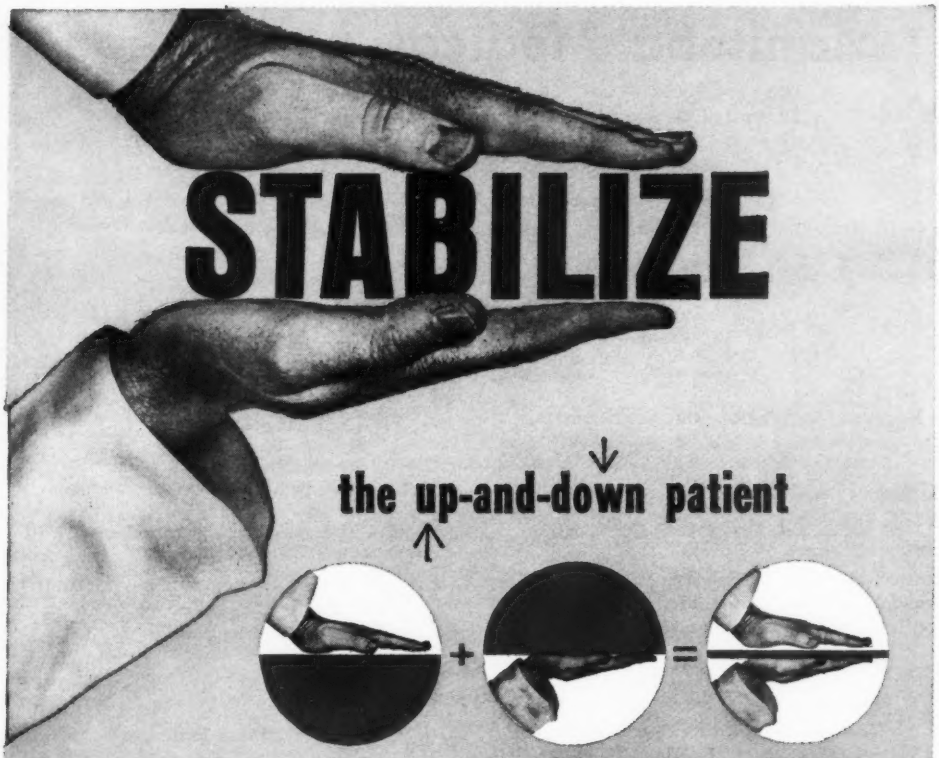
Editorial or other opinion expressed in this Review is not necessarily sanctioned by the Manitoba Medical Association.

The contents of the Review are protected under the Copyright Act of 1921 and are not to be reproduced in whole or in part without written permission.

Annual Subscription $5.00

The Manitoba Medical Review is published the first of each month, in 10 Yearly Issues — Jan., Feb., Mar., April, May, (June-July), (Aug.-Sept.), Oct., Nov., Dec.

Advertising Rates on Request



The calming and tranquillizing action of SERPASIL

- releases the patient from tension and anxiety induced by various environmental stresses
- lessens confusion, allays nervousness, insomnia and states of excitement in elderly patients

The mood-lifting psychomotor effect of RITALIN

- stimulates the patient and brightens his mental outlook
- overcomes depression, fatigue and apathy
- combats sedation and lethargy

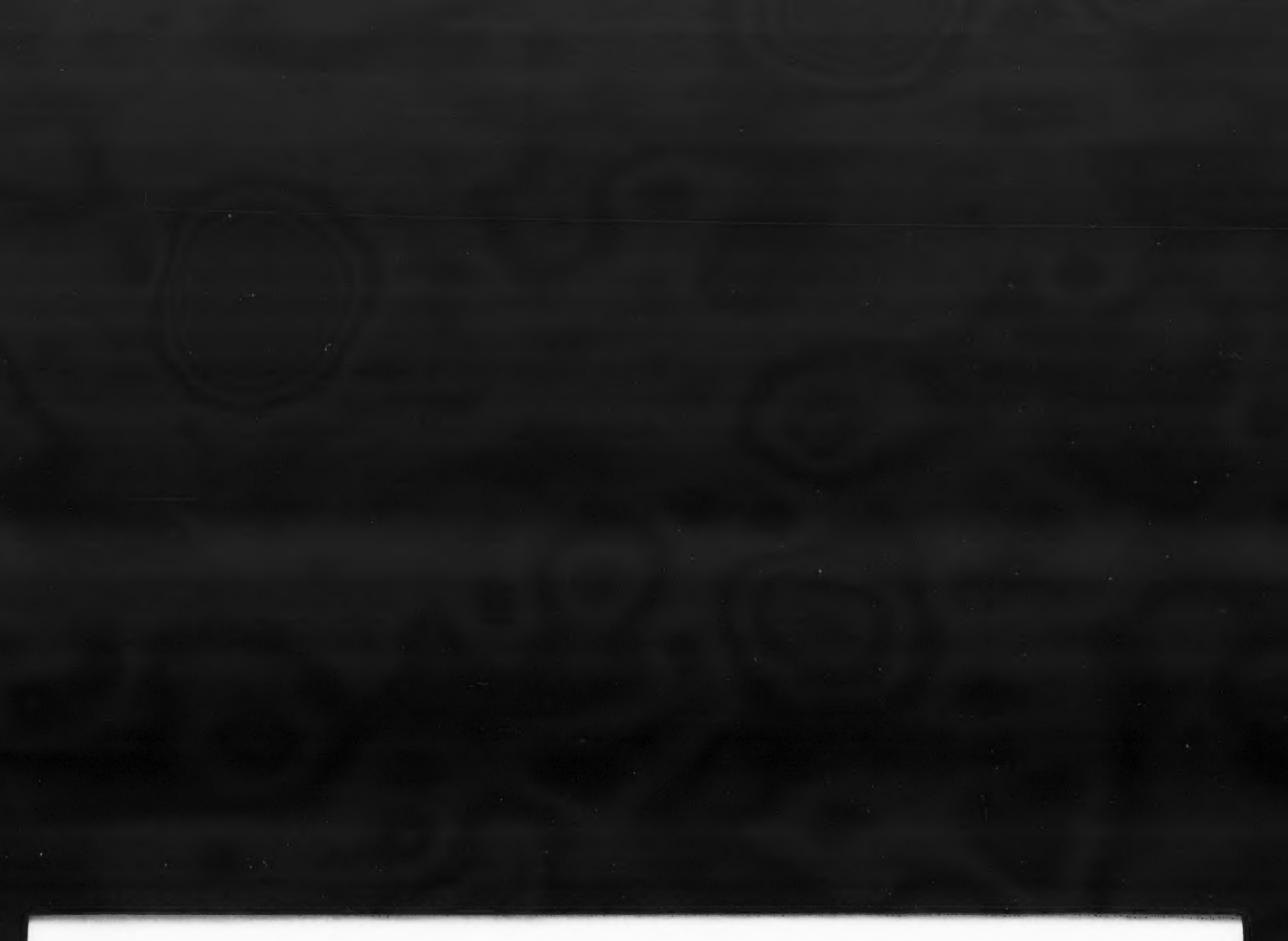
Thus, the complementary action of Serpasil and Ritalin in SERPATILIN restores and maintains emotional stability.

Issued: Tablets containing 0.1 mg. Serpasil (reserpine CIBA) and 10 mg. Ritalin (methyl-phenidyl acetate CIBA); bottles of 100 and 500.

Average dose: One tablet two or three times a day.

Serpatilin

CIBA
MONTREAL



Editorial

S. Vaisrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P., Editor

The Passing Wave

Were it not for the enchanting strains of a waltz in three quarters time wafted in by the breeze from the bandstand in the park on a certain Sunday afternoon, these lines would never have been written, and the reader would have been spared some light reading on a rather heavy subject. As it happened, however, the lilting melody of da Rosas' "Over the Waves" took your editor off guard, and threw him into a reverie during which, succumbing to the lure of loose association of ideas, he began to spin a light web of "Summer philosophy" on the subject of waves.

Waves belong to the river, the sea and the ocean. They keep company with sailors, fishermen and barefooted boys who play on the beaches. They inspire poets, painters and musicians. They are, however, indifferent to doctors, whom they meet but rarely during summer vacations.

Yet, the doctor is not a total stranger to the wave. Divorced from its literal sense, the wave meets him figuratively at every turn. The Q, R, S, T, U waves of the electrocardiogram, the alpha, delta and gamma waves of the electroencephalogram, the g, h, i, j, k waves of the ballistocardiogram, the A, C, V waves of the phlebogram, the waves of excitation and relaxation, the ciliary waves, the waves of peristalsis, the waves of nausea—all but threaten to engulf him. Indeed, figuratively speaking, medicine is almost inundated.

It is n o t, however, these graphic waves, interesting as they may be, that caught the rambling editorial fancy, but other waves with wider symbolic connotations—waves that form a permanent feature of the medical scenery, namely the waves of enthusiasm that rise and fall with every new medical theory or new therapy. Varying in size from tiny ripples to gigantic breakers, they often determine the pattern of medicine for years, decades, or even centuries. The latter may sound like an exaggeration, but actually is not. One has only to recall the duration of the humoral theory of disease and of its therapeutic offspring, phlebotomy. Antedating Hippocrates and Galen, the theory of humours and the treatment by blood letting dominated medicine until well into the nineteenth century. Smaller waves of medical fashion of much shorter duration — pneumatism, atomism, vitalism, iatrophysics, iatrochemistry, and others too numerous to mention came and went, leaving their traces on the sands of ancient and medieval Medicine.

On pondering over the cause of the waxing and waning of these waves we may be tempted to attribute it to the ignorance, superstition and empiricism of the pre-scientific age. This, indeed, would be a naive misconception, for, far from disappearing, these undulations in medical fashion are, actually, on the increase in the modern scientific era. We need only recall the days of mass tonsillectomies for "focal sepsis," of wholesale purgation and high colonic irrigations for "autointoxication," of cold "fresh" air for pneumonia and tuberculosis, of prolonged "rest" for all diseases—chronic or acute, the days of strychnine, arsenic and the ubiquitous potassium iodide, and the more recent ones of vitamins and hormones, as well as of the countless surgical operations and medical procedures, once popular and now discarded, to convince ourselves of the truth of this statement. The waves are not letting up at all. While the older ones are receding leaving a lot of backwash, many more new ones are approaching. Steroid hormones, enzymes, psychopharmaceuticals and many others are responsible for waves of enthusiasm which still engulf us.

The answers to the riddle of accession and recession of waves of medical enthusiasm cannot, thus, be found in ignorance, incompetence and superstition. Other answers, such as poorly controlled experiments, hasty conclusions, incomplete evidence and, above all, wishful thinking, and a sort of mass hypnosis, come much closer to the mark. Yet, it is at times, difficult to understand how these forces of error manage to break through the safeguards of sound physiology, good equipment, competent observation and solid statistics, so seemingly fool proof, that are often erected by those responsible for the new ideas or drugs. It is as if (how absurd!) theories and therapies have a mysterious life cycle of their own.

The cautious, the sceptical, and the slow moving among us, those who refuse to ride the crest of the waves, those who let enthusiasm pass them by, may find a measure of satisfaction in being able to say later when the waves recede, and their thunder sinks into stillness, "I told you so!" The impulsive and the gullible who are caught up by the waves only to be tossed down again, will find solace in the thought that enthusiasm is essential to all progress. Some day truth may come out of the waves, just as Venus, the Goddess of Beauty has emerged from them once when mankind was young.

The 1956 Annual Meeting

The 1956 Annual Meeting of the Manitoba Medical Association will be held at Winnipeg in the Royal Alexandra hotel, on October 15, 16, 17 and 18.

A promising program has been arranged by the Program Committee, on whose shoulders has rested for months the heavy burden of planning and preparing a scientific menu to satisfy every taste. A happy blend of lectures, panels, and symposia — the program will be sure to please the medical gourmet in search of fresh food for thought.

If we be permitted to shift from the sublime realm of thought to the somewhat ridiculous one of afterthought, we may find ample food for the latter in the recent restrictive ruling by the Dominion Government on the matter of income tax and medical conventions. Regret as we may, and should, the restriction of income tax deductible meetings to those held in Canada, we may find some consolation in the possibility that this limitation may act as a protective "tariff" for the local medical "industry," as a result of which we may expect better conventions with a bigger and better attendance, closer to home grounds.

The meeting of the Manitoba Medical Association, geared to a high attendance, is eagerly awaiting its welcome guests.

Ed.

Manitoba's Medical Men

Coroners XXIV

The Lieutenant-Governor through "Order-in-Council," representing Her Majesty the Queen, appoints the coroners for the Province. In Manitoba there is a Provincial Coroner, a Deputy Coroner and 84 District Coroners. These men are taking their appointments seriously and all conscientiously assume the responsibilities required of the office in an efficient and faithful manner.

The 1955 report of the senior Provincial Coroner to the Attorney-General is interesting and instructive. The number of cases investigated during the year 1955 were 809, as against 618 cases 10 years ago. This is an increase of about 200 cases in the last decade. This is for Greater Winnipeg, exclusive of St. Boniface and Fort Garry.

It is startling to realize that coronary thrombosis was by far the largest single cause of death, being 367 cases out of a total of 809 cases. There were 59 cases of deaths from cerebral hemorrhage. There were 456 cases involving the cardiovascular system. There were 68 cases involving the pulmonary system.

The number of babies that died suddenly and unexpectedly and who were unattended medically were 13. This is a matter of grave concern to the coroner and he has stressed this many times while investigating these cases, although this was below the average deaths in this group for the last 10 years.

Deaths in the operating theatre, or before recovering from the anaesthetic were listed as follows:

Operation:

Aneurysm-Cerebral. Hypo-Thermia.
Congenital Heart. Rupture of Pulmonary Artery.
Tonsillectomy—Fatal Hemorrhage.
Congenital Heart. Collapse during operation.
Cardiopexy Operation. Arrest of heart.
Cardiac Catheterization—Ventricular Fibrillation.
Gastrectomy—Cardiac arrest.
Congenital Heart Operation. Cardiac arrest.
Cancer of Thyroid Operation. Fatal Haemorrhage. ation.
Mitral Stenosis Operation — Collapse during operation.
Aortic Stenosis. Collapse before recovery from anaesthetic.
Ruptured Appendix Operation. Cardiac arrest.
Cancer of Tongue. Atelectases of lung.

Total 13.

The number of homicides were six, and there was one infanticide.

The suicides were listed as follows:

By Hanging	11
Drowning	8
Fire Arms	8
Cutting instruments	2
Jumping from heights	3
Poisoning:	
Barbiturates	6
Carbon Monoxide	5
Methyl Salicylate	1
Carbon tetra chloride	1

There were 94 accidental deaths in the Winnipeg District.

The number of post mortems performed by Pathologists were 453 and the number of inquests held were 68.

Once again the coroner has drawn attention to the pressing need for a Public Morgue with refrigeration facilities.

When a sudden, unexpected or violent death has occurred, then an attempt is made to answer four questions — who was he? where and when did the death occur? what caused the death? was death due to design, neglect or carelessness on the part of someone?

The procedure of investigation follows a definite pattern: (1) Attendance at the scene by the

coroner making notes and reporting observations, (2) Inquiry and statements by the Police Officers, including photos, measurements and protection of personal property. (3) Investigating by the Pathologist, (4) by the Toxicologist and by (5) the Anatomist. When this is completed the decision is made as to whether an inquest is to be held.

The coroner considers that Forensic teaching and jurisprudence is given too small a consideration in the curriculum. He is also of the opinion that the toxicological facilities are not adequate in this province.

There is often misunderstanding as to the function of the coroner's court. In essence, the coroner's court is a fact finding court.

There are three very important suggestions made by the coroner from time to time and always stressed. They are: (1) Build a public morgue, (2) Establish toxicological facilities within the province, and, (3) Increase the time in the curriculum for the teaching of Forensic Medicine and Medical Jurisprudence, and thereby give assurance that the medical men taking on the appointment of coroner familiarize themselves with the requirements of the office so as to give effective service in a public office.

L. A. Sigurdson.

Obituary

Dr. Samuel Eshoo

Dr. Samuel Eshoo died in Winnipeg on June 4th, aged 81. For 22 years he was in charge of the United Church hospital at Ethelbert, Manitoba but retired in 1942. The son of a Persian Presbyterian minister, he was born in Persia and planned to become a missionary. He obtained his medical degree in Canada from Queen's University then returned to Persia and worked in the American Mission at Tabriz.

He is survived by his son, Dr. Homer Eshoo, two daughters and six grandchildren.

Dr. Morry Brookler

Dr. Morry Brookler, 52, died at his home in Winnipeg on August 1. Born in London, England, he came to Winnipeg as an infant. He graduated M.D., C.M., from the University of Manitoba in 1930, was house-surgeon in St. Joseph's Hospital 1930 to 1934, and practised in Winnipeg. He was a member of the Shaarey Zadek synagogue and of the Masonic Order.

Medical Economics

Observations and Thoughts on Pre-Paid Medical Care Arising from the Western Conference of Pre-Paid Plans

John A. Ganshorn, M.D.

The Western Conference is a meeting of the Western Pre-Paid Medical Care plans in the United States and Canada. It embraces the medically sponsored plans of California, Oregon, Washington, Hawaii, British Columbia, Alberta, Saskatchewan, Manitoba, Wyoming, Utah, Nevada, Montana and Nova Scotia. In Canada there is the national Trans - Canada - Medical - Plans and in the United States the National Organization—the Blue Shield. The Western Conference exists, I believe, only because the plans in the West are based on a different or more advanced philosophy in pre-paid medicine. Service plans, rather than indemnity plans are favored and are further developed in the West.

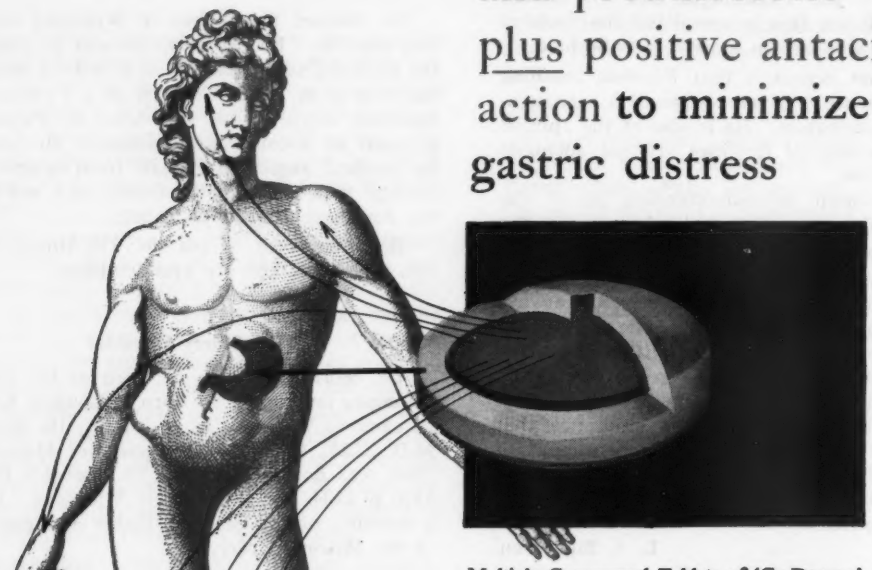
The purpose of the Western Conference is to further the cause of medically sponsored pre-paid medical care. It aims to do this by getting the plans together to help each other. Delegates—interested doctors and laymen get together once a year for discussion. A committee of plan administrators together with the chairman and secretary of the conference plan certain presentations for discussion, and now in the last two conferences workshops have been planned as well, where plan enrollment officers, plan medical directors, etc. may exchange ideas.

Of the accomplishments of the Western Conference, the following three are most significant:

The first, the most important and quite intangible, is the faith and confidence which the plans in the conference have in each other. It took five years to develop this, and until it was developed there was considerable doubt as to any good ever coming out of the conference. In those five years the delegates to the conference wondered, through eyes of suspicion, just what the other delegates had up their sleeves or in the back of their minds. Now we understand each other; we talk the same language; we have faith and confidence in each other.

The second is the transfer agreement between plans, which allows a subscriber moving from one plan area to another to transfer his coverage from one plan to another without loss of coverage and without loss of any seniority he has developed in the original plan. T.C.M.P. has such a transfer in operation between its member plans.

All the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress



Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra' are designed to help the physician cope with the problem of gastric distress which might otherwise become an obstacle to therapy with the newer steroids prednisone and prednisolone. Each Multiple Compressed Tablet is specifically formulated as a "tablet within a tablet" to provide stability and to release in sequence antacid and anti-inflammatory components.

NEW 'Co-Deltra' Prednisone Buffered

MULTIPLE COMPRESSED TABLETS

and

'Co-Hydeltra' Prednisolone Buffered

Supplied: Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra', each containing 5 mg. prednisone or prednisolone, 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate, U.S.P., bottles of 30 tablets.

'Co-Deltra' and 'Co-Hydeltra' are the trademarks of Merck & Co. Limited

SHARP & DOHME

MONTREAL 30, QUE.
DIVISION OF MERCK & CO. LIMITED

The third accomplishment is the "Out of Province" or "Out of State" service benefit agreement. Many of the states in the Western Conference have signed this agreement. Only British Columbia, Alberta and Nova Scotia have signed it in Canada. The subscriber to this plan gets his bill paid at home—he even gets it paid when he gets hurt or falls ill when he is away from home. The cost of such extra service can't be much and is well worth it. An attempt to bring such an agreement into T.C.M.P. failed at its last meeting. It was considered premature. Quebec and the Maritimes still have no service plan. This, of course, is no reason why the provinces who have a service plan could not sign such an agreement and give this service in these provinces at least.

There is a further benefit which I believe every Canadian gets, who attends these conference meetings, and that is a lift. He will come home feeling that his plan and his province deserve a pat on the back. The standard of benefits of the pre-paid plans in the United States is away below that of the Canadian plans. The things which they are planning to do, or feel they must do—are already being done in Canada. We heard at the Conference that service plans were a must, that indemnity plans no longer satisfied the subscriber; that the coverage would have to be broadened to a comprehensive home and office coverage, and to that of diagnostic procedures. We were not surprised to hear this, for in Western Canada we have been doing this for a long time.

We heard Mr. Becker say that the views of management are going to become increasingly important. They are going to be more and more concerned with costs and the efficiency of management of plans. He states that there will be an increasing number of employer "pay-all" contracts. This we have seen started in British Columbia. The profession has indicated that it is opposed in principle to this. The profession wants the subscriber to remain interested in the cost of his medical care. To retain this interest in cost he must pay at least a part of the premium himself. It is a basic principle of the C.M.A. that the health insurance be a contributory type of insurance.

There was a prediction of and a plea for increasing participation of laymen on the boards of directors of pre-paid plans. A philosophy is developing which is centred on rendering "a service" to our people. The old philosophy, which regarded pre-paid plans as a stop-gap, is going. Pre-paid plans are no longer endorsed merely to forestall commercial insurance companies or the government.

The profession now accepts and promotes health insurance plans to solve the problem of the distribution of medical care. How do we do this in the majority of our plans? What type of board have we running the plan? Each plan differs in the composition of its board. Even though the majority are doctor dominated, all have lay members. We have all recognized the value of the lay member, but do we get his full value? Is there a way of ensuring that we get his full value?

Mr. Segal, a broker and consultant on Health and Welfare plans, spoke on this matter of doctor dominated boards. He said that he saw nothing especially attractive about a 'doctor run" plan. He was in favor of California Permanent type of plan, the type of plan run by management and labor, the type of health care plan which Dr. Hodges, our chairman, so aptly called "supermarket" medicine, with captive (salaried) doctors, administering medical care to captive patients. Mr. Segal implied that the people would be much better off if the doctors just tended to their professional duties.

Dr. Hodges dealt most ably with the subject of laymen on the board of directors. He was strong in their praise. He pointed out how valuable they were in interpreting public understanding, how they provided balance in consideration of a program designed to serve the public interest, as well as the interests of the profession.

I cannot help but think that Dr. Hodges is only pointing out the first few steps up the ladder of advance. We all recognize the importance of lay representatives on the board. The next step is elected lay representatives, and the next step lay dominated boards. I believe we in British Columbia have been most fortunate in the organization of our pre-paid plan. The membership of the association is composed of three types of members: employees, employers, and doctors. At the annual meeting of the association all three types of members attend. It is at this meeting that the members of the board are elected, each by his own group. It is at this meeting that the board of directors report the affairs of the association back to the members at large. It is here that the membership at large, mostly employee members, pass on matters of concern to it and make recommendations to the board. It is here, to the public, as it were, that the board of directors must explain its actions and uphold them.

We started in 1940 with this set-up and I can quite truthfully say we are very happy with it. There have been times when we have been worried. There have been vexatious problems to solve and we have worried whether we had found the right answers.

There are four reasons for preferring a lay dominated board:

1. Medical matters, that is problems arising from medical practice are dealt with by the medical association, not the doctors on the board of M. S. A.

2. The people, and, I believe, the government too, look more favorably upon the plan.

3. Doctors get better paid.

4. There is less danger of over-socialization of medicine.

The first reason is obvious, for there are only two medical men on the board of M.S.A. These two men could never alone solve the medical problems—they wouldn't dare. They must go for medical policy back to the medical association. The same applies with regard to arguments which arise between individual doctors and M. S. A. Disagreements with regard to accounts which the medical director cannot settle satisfactorily are sent to a reference committee of the medical association. The board of directors of M.S.A. have never refused to follow the direction of the reference committee and their solutions have almost as often been in favor of the doctor as in favor of M.S.A. The assumption of these responsibilities makes for a strong medical association.

My second point in favor of elected lay members on the board is the confidence which this builds up in the mind of the public and in that of the government. This hardly needs elaboration. Certainly, the board of M.S.A. with six laymen and two professional members can never be considered doctor dominated.

My third point is that the doctor is better paid. I believe that the public wants to pay the doctor well, and that laymen on the board will help to see that this is done. I believe there is good support of this contention in the quarterly statement of T.C.M.P. analyzing the costs, the income and the payments to doctors of each of its member plans. The plans with doctor dominated boards which are the majority of the plans, tend to pay less than 90% of the schedule of fees adjusted downward from the provincial schedule, and the plan in Manitoba, unlike most plans, does not build any reserve. M.S.A. in B.C. and M.S.I. in Alberta with lay dominated boards have reserves and pay their doctors 90% of the provincial schedule. (M.S.A. actually has a reserve in excess of two million dollars.

My fourth point is that a lay dominated board is a good guarantee against the over-socialization of medicine. I read in your Manitoba Medical Bulletin recently the following statement made by Dr. E. P. Scarlett of Calgary and attributed to a friend of his in Dublin: "Everyone when he grows up should be mature enough to be a socialist at heart, and have common sense enough not to put it in practice."

We have already accepted some socialization of medical care. The process has been going on bit by bit over the last 30 years, as examples will serve tuberculosis and the care of veterans. Passive acceptance has usually been the profession's attitude when it has involved schemes that introduce government care for specific diseases like tuberculosis. The profession has actually participated when it came to the scheme for veterans. We are sponsoring pre-paid plans which is socialized medical care. What is important, and where the danger lies, is in the extent to which socialization goes, and that means "Where do we stop?" The complete welfare state is a definite danger when medical care is left entirely to the government. The men in government will give the people more and more for the sake of votes. The day of reckoning comes—what is given must be paid for. There is a limit to what can be paid, and the next thing is an inferior, a cheaper grade of medical care.

Why do I think we are safer in our socialization of medical care when it is provided for through a pre-paid plan with a board of directors with a dominance of elected lay members? Because the latter are not concerned with politics. They have a broad-based common sense, and the public accept decisions better from such a lay dominated board.

Again I would like to thank you for the honor you have done me in asking me to return to speak in the home of my alma mater.

We have a love for the peoples of Canada and for our profession.

We are trying in our pre-paid plans to give the highest standard of medical care at as reasonable a cost as can be paid. We must not do less, we cannot do more.

ANNUAL MEETING

Manitoba Medical Association

(Canadian Medical Association, Manitoba Division)

Winnipeg, October 15, 16, 17, 18

Tentative Program

All Scientific and Business Sessions will be held in the Crystal Ballroom Royal Alexandra Hotel

Guest Speakers

Dr. Jacques Genest, Director Clinical Research, Hotel Dieu, Montreal, P.Q.

Dr. G. A. Hallenbeck, Surgical Section, Mayo Clinic, Rochester, Minn.

Dr. J. Renaud Lemieux, President, Canadian Medical Association, Quebec, P.Q.

Dr. Joseph Luke, Surgeon, Royal Victoria Hospital, Montreal, P.Q.

Dr. Morris Victor, Assistant Neurologist, Massachusetts General Hospital, Lecturer in Neurology, Harvard Medical School, Boston.

Sunday, October 14th

Evening

6.00 Vice Regal Suite.
President's Dinner to Retiring Executive.

Monday, October 15th

Evening

7.00 Annual Business Meeting — Panel Discussion, Report of Commission re Manitoba Medical Service.
Chairman — Dr. P. L'Heureux.

Tuesday, October 16th

Morning

8.15 Registration.

8.30 Welcome by President, Manitoba Medical Association,
Dr. R. Lyons.

8.35 Film: Vitamin Deficiency in Pregnancy.

9.00 New Uses of Tracheotomy as an Adjunct to Surgery,
Dr. J. M. Kagan.

9.30 Infections in the Newborn and Their Sequelae,
Dr. E. J. S. N. Briggs.

10.00 What is Normal?
Prof. I. Maclaren Thompson.

10.30 Intermission — Visit the Exhibits.

11.00 The Modern Management of the Arteriosclerotic Leg,
Dr. J. C. Luke.

Noon

12.00 Luncheon, Colonial Room. Guest Speaker — Hon. R. W. Bend, Minister of Health and Public Welfare, Province of Manitoba.

Afternoon

2.00 The Management of Arterial Hypertension,
Dr. J. Genest.

3.00 What Shall We Give 'Em?,
Dr. S. Israels.

3.30 Symposium on Hospital Infections,
Dr. J. C. Wilt, Chairman

Evening

6.00 Sectional Dinners and Meetings.

Wednesday, October 17th

Morning

8.15 Registration.

8.30 Film: Hypotensive Surgery.

9.00 Intra Uterine Foetal Death after the Seventh Month,
Dr. Leon Rubin.

9.30 The Causes and Management of Leg Ulcers,
Dr. J. C. Luke.

10.30 Intermission — Visit the Exhibits.

11.00 Carcinoma of the Stomach,
Dr. G. A. Hallenbeck.

Noon

12.00 Luncheon, Colonial Room. Guest Speaker —Dr. M. Victor, The Effect of Alcohol on the Nervous System.

Afternoon

2.00 Use and Abuse of Drugs in Therapy of Hypertension,
Dr. J. Genest.

3.00 Annual Business Meeting (Continued).
Discussion — Manitoba Medical Service.

Evening

8.00 Annual Business Meeting (Continued).
Presidential Address.

Thursday, October 18th

Morning

8.15 Registration.

8.30 Film.

9.00 Abnormal Presentations,
Dr. R. L. Willows.

9.30 Drug Reactions,
Dr. A. R. Birt.

10.30 Intermission — Visit the Exhibits.

11.00 Cerebral-Vascular Disease — Current Concepts in Diagnosis and Management,
Dr. M. Victor.

Afternoon

2.00 Some Aspects of Portal Hypertension,
Dr. G. A. Hallenbeck.

3.00 The Relationship of Disordered Fat Metabolism to Coronary Athero Sclerosis,
Dr. P. T. Green.

3.30 Reconstruction of the Vocal Cords.
Dr. J. C. Hutchinson, Seattle.

Evening

6.30 Reception — Tea Lounge.

7.15 Dinner — Alexandra Room.

9.00 Dance — Crystal Ballroom.

Association Page

Reported by M. T. Macfarland, M.D.

Report of Nominating Committee Manitoba Medical Association For Officers 1956-57

Article 11 of the Constitution and By-laws provides that: "The President, First and Second Vice-Presidents, Honorary Secretary, and Honorary Treasurer, and the additional members of the Executive Committee, unless otherwise provided in this constitution, shall be elected at the business session of each Annual Meeting. They shall be elected from nominations, one or more names for each office, to be submitted by the Nominating Committee to the Executive Committee and published in the Association Bulletin at least one month before the Annual Meeting, and from such other nominations as may be made from the floor at the business session of the Annual Meeting.

"The voting shall be by ballot. The poll shall be open during the Annual Meeting for such period after nominations are closed, as shall be decided by the President."

In accordance with the above the Nominating Committee is pleased to present the following report:

President:
Dr. J. E. Hudson, Hamiota.
First Vice-President:
Dr. C. B. Schoemperlen, Winnipeg.
Second Vice-President:
Dr. Edward Johnson, Selkirk.
Dr. G. T. McNeill, Carberry.
Honorary Secretary:
Dr. J. C. Rennie, Portage la Prairie.
Dr. V. J. H. Sharpe, Brandon.
Honorary Treasurer:
Dr. W. J. Boyd, Winnipeg.
Rural Member at Large (3 years):
Dr. M. K. Brandt, Dauphin.
Dr. H. C. Stevenson, Minnedosa.
Winnipeg Member at Large (3 years):
Dr. G. F. Hamilton, Winnipeg.
Dr. C. H. A. Walton, Winnipeg.

Central District Medical Society

The Central District Medical Society held a Refresher Day at the Portage General Hospital on the 25th of April, through the kind co-operation of Dr. Gemmell and the committee on Post Graduate Education. Doctors were present from Portage, Oakville, Gladstone, MacGregor and R.C.A.F. Station, Portage la Prairie.

After luncheon at the hospital, papers were given by the visiting speakers. Dr. W. Friesen of Winnipeg spoke on "Ovarian Function," and made a plea for prophylactic oophorectomy in suitable cases when the opportunity presented.

Dr. W. B. MacKinnon, also of Winnipeg, spoke on "Affections of the Knee Joint," and presented some excellent slides. Both papers were well received and resulted in prolonged discussion.

The day closed with a Reception and Dinner at the Hotel Portage.

Brandon and District Medical Association

A meeting of the Brandon and District Medical Association was held in the Brandon General Hospital on Wednesday, May 23rd.

The clinical session was presented by a visiting team from Winnipeg as follows: Dr. J. C. Wilt, Professor of Bacteriology, Dr. W. Karlinsky, Internist, Dr. Wm. C. Taylor, Pediatrician and Dr. J. McGoey, E.N.T.

At the Business Session the following officers were elected for the year May 1956 to May 1957: President, Dr. G. T. McNeill, Carberry; Vice-President, Dr. V. J. H. Sharpe, Brandon; Secretary-Treasurer, Dr. H. M. McIntyre, Brandon; Executive Committee: Doctors J. B. Baker, D. G. Coghlin, A. P. Lapko.

The subject of Boundaries of Districts was discussed and the Secretary was instructed to write the Executive Secretary of M.M.A., stating the various views expressed by the members. No one policy could be agreed upon and it was thought the M.M.A. should formulate a definite boundary for each District and then so inform the Districts. As a help in doing this, the following suggestions were put forth: (a) That Brandon and District be bounded by an area including Carberry on the East, Minnedosa to the North, Virden to the West and Boissevain, Killarney on the South; (b) that there be one large district of Western Manitoba — combining Brandon, Northern and Northwestern Districts as they exist today; (c) Send a questionnaire and ask each doctor what District he wished to support and attend; (d) Let the M.M.A. state the boundaries definitely and so inform the members.

It was moved by Doctors Matheson and Myers that the Executive Secretary of M.M.A. be informed it was the opinion of this meeting that a General Meeting of M.M.A. be called to discuss the subject of the recent Hospital Aid Act, the proposed laboratory and X-ray facilities and the article appearing in the May 1st, 1956, C.M.A. Journal. Carried.

It was moved by Doctors Evans and Skafel that a joint meeting of Northern, Northwestern and Brandon and District, be held in September, 1956, at Clear Lake. Carried.

The
NEW
Phenothiazine
Derivative

Sparine*

Promazine Hydrochloride
10-(γ-dimethylamino-*n*-propyl)-phenothiazine hydrochloride

For the Management of the Acutely Agitated Patient

• *The acute alcoholic* • *The acute psychotic* • *The drug addict*

A promising new agent in chemopsychotherapeutics, SPARINE has demonstrated impressive effectiveness in controlling acute excitation without inducing significant side-reactions.[1,2,3]

SPARINE is a new, clinically effective phenothiazine derivative, which may be administered intravenously, intramuscularly, or orally. The route and dosage are determined by the extent of central-nervous-system excitation and by the patient's response.

Supplied: Tablets, 25, 50 and 100 mg., bottles of 50 and 500; 200 mg., bottles of 500. Injection, 50 mg. per cc., vials of 2 and 10 cc.

1. Seifter, J., et al.: To be published. 2. Fazekas, J. F., et al.: M.Ann. District of Columbia 25:67 (Feb.) 1956. 3. Mitchell, E. H.: J.A.M.A. In press.

Wyeth
Registered Trade Mark
WALKERVILLE, ONTARIO
WINNIPEG - MONTREAL

An Exclusive Development of Wyeth Research

*Trade Mark
℞ available on prescription only

We wish to thank the Committee on Medical Education, Dr. Gemmell, and the members who came here on Wednesday and presented our Clinical Programme for us. A thank you too, to Dr. Lyons.

Col. Wood gave us a brief and to-the-point after dinner talk on Casualty Evacuation in the event of disaster in this area.

V. J. H. Sharpe,
Secretary-Treasurer.

Southern District Medical Society

A meeting of the Southern District Medical Society was held at the Morden Hospital on Thursday, May 24th.

Present were: Drs. C. L. Blight, Miami; J. O. Boxall, Manitou; C. E. K. Cohoe, Pilot Mound; H. C. C. Cohoe, Pilot Mound; W. M. Colert, Morden; J. G. Lohrenz, Altona; A. F. Menzies, Morden; J. C. Menzies, Morden; H. U. Penner, Winkler; S. S. Toni, Altona; C. W. Wiebe, Winkler; R. E. Beamish, Winnipeg; J. P. Gemmell, Winnipeg; R. Lyons, Winnipeg; M. T. Macfarland, Winnipeg.

In the absence of the President and Secretary, Dr. W. M. Colert acted as Chairman and Dr. J. C. Menzies as Secretary-Treasurer.

A request for nomination for officers for the current year resulted in the election of Dr. H. U. Penner, Winkler, as President and Dr. C. Wiebe, Winkler, as Secretary.

The Scientific Program consisted of a discussion of the Cardiogram and was presented with illustrations by Dr. R. E. Beamish, Winnipeg.

Several clinical cases were presented and discussed by Drs. R. E. Beamish, J. P. Gemmell and R. Lyons.

Following a delicious dinner which was served in the Nurses' Dining Room, Dr. C. Wiebe acted as Master of Ceremonies. Brief discussion on Health Insurance and Manitoba Medical Service was lead by Dr. Ruvin Lyons, President, and Dr. M. T. Macfarland, Executive Secretary of the Manitoba Medical Association.

M. T. M.

Revised Prices for Photocopying Services

The Medical Library of the University of Manitoba established a photocopying service in 1954 to replace as far as possible the loan of original material to the profession when that material would be

(1) required for a very long period.
and/or
(2) if the article would be only 4 or 5 pages in length, in a bound volume, and required by a rural practitioner.

Because of the purpose of the service the charges were set at a very low figure.

Since that time costs have risen and the service has been extended beyond its original intention. Consequently it is necessary that the rate must be increased to approximate more nearly the actual basic cost.

Beginning August 1st, 1956 the Rate will be $1.50 for a photoprint of any article of not more than 7 pages. An additional $1.50 for every 10 consecutive pages or fraction thereof.

It should be emphasized that this is in no way intended as a general photocopying service and that the library endeavours to meet the terms and intent of the Fair Copying Declaration—on file in the library. Also, because of this, the library is unwilling to copy recent material—especially when published in North America within the past year (12 months) and may be obtainable from the publisher.

Pan-Pacific Surgical Association

Seventh Congress, Honolulu, Hawaii

The Seventh Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, November 14-22, 1957. All members of the profession are cordially invited to attend and are urged to make arrangements as soon as possible if they wish to be assured of adequate facilities.

An outstanding scientific program by leading surgeons with sessions in all divisions of surgery and related fields promises to be of interest to all doctors.

Further information and brochures may be obtained by writing to Dr. F. J. Pinkerton, Director General of the Pan-Pacific Surgical Association, Room 230 Young Building, Honolulu. Hawaii.

for the treatment of

HYPOCHROMIC ANEMIA

"PROHEMA"

BRAND OF IRON, VITAMINS AND LIVER CONCENTRATE

- **Produces response in many patients resistant to treatment with iron alone.**
- **Corrects associated deficiencies of dietary origin.**

For those cases of secondary anemia showing evidence of faulty erythrocyte maturation, and megaloblastic anemia of pregnancy.

"PROHEMA" COMPOUND
TABLET No. 433 Frosst

The same formula as Prohema modified to contain:

Vitamin B_{12}	2.5 mcg.
Folic acid	0.67 mg.

"PROHEMA"
TABLET No. 432 Frosst

Each sugar-coated tablet contains:

Ferrous sulphate (exsic.) (Ferrous iron, 90 mg.)	0.3 G.
Copper sulphate	1.6 mg.
Thiamine hydrochloride	1 mg.
Riboflavin	1 mg.
Niacinamide	10 mg.
Ascorbic acid	25 mg.
Vitamin D	333 I.U.
Liver fraction 2, N.F.	67 mg.

DOSAGE: One tablet, three times daily.

Bottles of 100 tablets.

Charles E. Frosst & Co.
MONTREAL CANADA

Social News

Reported by K. Borthwick-Leslie, M.D.

Much honor and distinction has been scattered about to our members since the last edition, so mass congratulations to—

Dr. Harry Medovy, who has been doubly honored, first by being elected President of the Canadian Paediatric Society, succeeding Dr. Harry Ebbs of Toronto.

A most successful annual meeting was held in June at Honey Harbour, Ont., June 12-14. In 1957 the meeting is to be held in Winnipeg on the occasion of the Scientific opening of the new Children's Hospital. Dr. Medovy proceeded from Ontario to Buck Hills, Pa., where he was elected to membership in the American Paediatric Society.

♦

At the Annual meeting of the Society of Obstetricians and Gynaecologists, in Murray Bay, Que., in June, Dr. Brian Best was elected President.

♦

Dr. P. Gaskell, for the second year, has been awarded the Canadian Life Insurance Medical Fellowship. Dr. Gaskell is doing research work in estimating the critical closing point of pressure in human extremities in Hypertension.

♦

Dr. Walter Fox, formerly of Winnipeg, now of Lakeland, Kentucky, has won an award for his paper prepared on the use of drugs in chronic psychotic patients. Dr. Fox is a '48 Manitoba graduate, receiving his Psychiatric Certification in 1954. He is now Superintendent of the Central State Hospital, Lakeland, Ky.

♦

Dr. Emmett Dwyer, regional medical director of the C.N.R., is the new Commissioner of the Greater Winnipeg Corps of the St. John Ambulance Brigade. He succeeds Dr. K. C. McGibbon who announced his retirement after twelve years service.

♦

Dr. Lyonel G. Israels has been appointed medical director of the Red Cross Blood Transfusion Service for Manitoba. Dr. Israels did his P.G. study in Haematology at the Universities of Utah and Zurich, and is also assistant professor of biochemistry at Man. Medical College, where he is continuing his research in haematology.

♦

Dr. Jack Sheps, U. of M. graduate, is now in New York, known as the "Champion of old age." He is 39 years! He calls himself a Geriatrician, but holds certification in Neuropathology, Neurology, Psychiatry and Psychoanalytic medicine. If he were in Winnipeg about 40% of my practice would be turned over to him pronto and gratefully.

♦

Dr. and Mrs. W. M. Musgrove, Assinniboine Drive, doting grandparents, are having a wonderful time getting acquainted with grandson David Danard (2 months) who has motored from Cold Lake, Alta., with his parents, Mr. and Mrs. (Peggy) D. C. Danard.

Dr. Mel Brown has been elected president of the Winnipeg Optimist Club. Headaches for Mel.

♦

July 21, Harrow United Church was the scene of the marriage of Maryann Waldon, daughter of Dr. and Mrs. H. V. Waldon, Vita, Man., to Norman Peterson, son of Mr. and Mrs. A. Peterson, Henderson Hwy.

♦

On Saturday, August 18th, in Harstone Memorial United Church, June Knudson will become the bride of Mark Francis Macpherson, son of Dr. and Mrs. R. A. Macpherson.

♦

Dr. and Mrs. Alvin E. Rodin, with daughters, have gone to Kingston, Ont., where for two years Dr. Rodin will continue P.G. work in Pathology, at Queen's University.

♦

Department of Displaced Medics:

Lloyd C. Bartlett, M.D., F.R.C.S. (C) announces the association of William A. Maclean, M.D., D.A.B.S., F.R.C.S. (C), former surgical resident, Memorial Center for Cancer and Allied Diseases, New York City, in the practice of General and Tumor Surgery, 325 Medical Arts Bldg.

Harold N. Lynge, M.D. and Gord Fischer, M.D. announce the opening of their office for the practice of Neurosurgery, at 507 Medical Arts Bldg.

N. H. Werner, M.D., Eye Specialist, wishes to announce the opening of his office for the practice of Ophthalmology, 404 Norlyn Medical Bldg., 309 Hargrave St.

♦

Rod C. Davison, M.D., formerly of Henry Ford Hospital, Detroit, Mich., announces the opening of an office at 432 Medical Arts Bldg. Practice confined to ear, nose, throat and endoscopy.

♦

Welcome to the Newest '56 Models:

Dr. and Mrs. Grant Colpitts, a baby girl in Welland General Hospital.

♦

Dr. and Mrs. C. Lavoie announce the arrival of Mark Joseph, June 27th.

♦

Dr. and Mrs. Gordon Steenson (nee Edith Button, R.N.) proudly announce the birth of Janice Diane, in Ashern, Man., sister for Bobby and Valerie.

♦

Dr. and Mrs. Alex Richman announce the birth of their second son, David Ross, June 26, 1956.

♦

Dr. and Mrs. Ian McDonald announce the birth of George Bruce, June 3, 1956, a brother for David, at Saskatoon University Hospital.

♦

Dr. and Mrs. D. C. Irving, Crystal City, announce the birth in Crystal City, of Richard James, August 10th. That brother for Barbara and Kathy.

College of General Practice of Canada

Newsletter to Family Doctors of Manitoba

It is with a great deal of pride and pleasure that your Executive brings you a report of the progress of your Chapter since its inception nearly two years ago.

The prestige of the College of General Practice of Canada has continued to ascend and with it the influence of your local Chapter has assumed greater importance in the work of both our hospital and medical environments. Although active in many phases of medical direction, the main stress of work initially is being placed in the fields of post-graduate medical education, public relations of the Family Doctor, establishment of Departments of General Practice in hospitals with acreditation of doctors, Survey of General Practice in Canada. Research by General Practitioners in fields of interest to them, and a host of other activities. Each year the projects of the College reach out into newer fields in the interests of the Family Doctor and his patients.

The Manitoba Chapter is taking its part in these activities through its Committees. The hardest working Committee is in Education. Here Dr. Henderson and his Committee members have taken over this work from the G.P.A.M. In collaboration with the University Committee on post-graduate medical education, headed by Dr. J. Gemmell, they have developed an exceedingly interesting and very timely course for this fall on therapeutics to be given in once a week evening lectures by Dr. Nickerson. Notice of this course will be found elsewhere in this Journal.

Travelling teams of lecturers will continue as usual to visit the various medical districts of the M.M.A. and a refresher course is already planned for next March on a three-day basis, in Winnipeg. All educational efforts are for the benefit of all General Practitioners, whether members of the College or not. However, we feel that the more members of the College we have, the more extensive our courses will become, and the more advantage to all.

A new roster has just been issued, and it is a pleasure to see our continued growth. We have now 110 members (several names were too late to get into the roster.) We feel we would like to have 500 on our list by Annual Meeting time in October. Would you not like to be in this movement? Can we help you by answering any questions? Just write to any of our Executive. If it can be arranged, an application form will also be printed in this issue. Make this your priority issue of the Manitoba Medical Review.

Dr. Bachynski has performed a tremendous success as Chairman of the Committee on Constitution and By-Laws for the College of General Practice of Canada.

Dr. Jack McKenty is now President-elect of the College of General Practice of Canada. We wish to congratulate him and suggest your enthusiasm for this appointment could best be expressed to him by becoming a member of the College, or renewing your present membership.

Our Annual Meeting will be held in October at the time of the Annual Meeting of the M.M.A. New officers will be elected and more Committees will be formed to work for our College, and the Family Doctors. We would like a great increase in committee members from outside Winnipeg. There are appointments which can be fulfilled without too frequent visits to Winnipeg. Only in this way can the Chapter act as a fully cohesive unit for the whole of Manitoba.

In closing, we would like you to feel the enthusiasm with which the College of General Practice of Canada is meeting all over our Country. Please join us so that we may aid each other in keeping the practice of the Family Doctor on the highest plane of public confidence and civic respect.

Merrell Carleton, M.D.,
Chairman.

Application Form, See Page 499

College of General Practice

Post-Graduate Course on Pharmacology and Therapeutics offered by The Manitoba Chapter of the College of General Practice of Canada for the season 1956-7.

The Manitoba Chapter of the College of General Practice of Canada, with the sanction of the Chairman of the Post-Graduate Committee of the Manitoba Medical College, announces the following course of lectures to be given by Dr. Mark Nickerson, Professor of Pharmacology at the University of Manitoba. The lectures will be on pharmacology and therapeutics, and will be held once a week for a period of 16 to 17 weeks, commencing Wednesday, September 19th, 1956, at 8.15 p.m. in one of the lecture theatres of the Manitoba Medical College. The course will be open to all members of the medical profession. As much of the material as possible will be covered in this series of lectures. Should it be necessary, an additional series of lectures will be arranged for the season of 1957-58, to complete the course.

The fee for the 1956-57 series is $25, and applicants may register by sending their remittance to the Manitoba Chapter of the College of General Practice of Canada, addressed to the Secretary, Dr. Joseph Hollenberg, 394 Graham Ave., Winnipeg 1. Early registration of those intending to attend this series of lectures is requested, so that suitable accommodation may be arranged.

The following is the list of lectures, but not necessarily in the order to be given:

Water and Electrolyte Balance — Treatment of anuria, dehydration, etc.

Blood and Plasma Volume Expanders—Prevention and treatment of shock.

Digitalis and Diuretics — Treatment of Congestive Heart Failure.

Quinidine, Procaine Amide, etc. — Treatment of Cardiac Arrhythmias.

Sedatives and Hypnotics.

Ataraxic Drugs — Alteration of mood and of patient's response to symptoms.

Analgesics—Problems of prolonged relief of pain, tolerance and addiction.

Antiepileptics — Treatment of epilepsy.

Interneurone Depressants — Treatment of Parkinsonism and spasticity.

Local Anesthetics.

Respiration — Therapeutic Uses of O_2 and CO_2.

Principles of Autonomic Nervous System Regulation.

Sympathomimetic and Parasympathomimetic Agents.

Anticholinergic Drugs, Antispasmodics and Antacids — Treatment of peptic ulcer.

Blocking Agents — Treatment of hypertension and peripheral vascular disease.

Smooth Muscle Relaxants and Antihistaminics—Treatment of Angina pectoris, and of asthma and other allergic reactions.

Smooth Muscle Stimulants —Treatment of Migraine and use in obstetrics.

Insulin—Treatment of diabetes and diabetic coma.

Thyroid and antithyroid agents.

Adrenal Steroids.

Sex Hormones.

Drugs Affecting Blood Formation — Treatment of anemias.

Drugs affecting Blood Coagulation — Treatment of thrombotic disease and abnormal bleeding.

Principles of Chemotherapy.

Antibiotic and Chemotherapy of Bacterial Infections, local and systemic.

Treatment of Parasitic Infestations.

Heavy Metals and Other Poisons.

MAGNAHEMIN*

Hematinic Lederle

the most potent of all oral hematinics

One capsule daily for treatment and maintenance of *all* treatable anemias, including pernicious anemia.

Each capsule contains: Vitamin B_{12} with Intrinsic Factor Concentrate . . . 1 Oral Unit; Vitamin B_{12} (additional) . . . 15 mcgm; Ferrous Sulfate Exsiccated . . . 400 mg; Powdered Stomach . . . 200 mg; Ascorbic Acid (C) . . . 150 mg; Folic Acid . . . 4 mg.

Lederle

LEDERLE LABORATORIES DIVISION, *NORTH AMERICAN Cyanamid LIMITED*, MONTREAL, QUEBEC

*REG. TRADEMARK IN CANADA

FOR THE SPECIFIC TREATMENT OF

TENSION HEADACHE

to

RELIEVE PAIN

REDUCE TENSION

RELAX MUSCLE SPASMS

FIORINAL

IS THE DRUG OF CHOICE

SANDOZ PHARMACEUTICALS
Montreal, P.Q.

SANDOZ

COLLEGE OF GENERAL PRACTICE OF CANADA

APPLICATION FOR MEMBERSHIP

(PLEASE PRINT OR TYPE)

Name in full..... Date.....

Office address..... City..... Prov.....

Residence address..... City..... Prov.....

Place and date of birth.....

Medical Education—Medical school.....

—Date of graduation..... Degree.....

Licensed to practise in..... province(s)

Other qualifications and diplomas.....

.....

.....

Internships—Hospitals..... From..... To.....

..... From..... To.....

..... From..... To.....

..... From..... To.....

Teaching appointments.....

How long have you been engaged in the active general practice of medicine?.....

Are you now so engaged?.....

How long did you serve as an assistant to a general practitioner?.....

With whom did you so serve?.....

From..... To.....

Are you a member of a hospital staff(s)?.....

In what category?—Honorary ☐ Active ☐ Associate ☐ Consulting ☐ Courtesy ☐

Name of hospital(s).....

.....

Member of..... local medical society

Educational Activities in Past Two Years:

1. Scientific meetings attended: *Approx. No. of hours*
   County medical society meetings:

   _____ _____

   Conventions—Provincial Association, C.M.A. and others (specify and give dates):

   _____ _____

   _____ _____

   _____ _____

   _____ _____

2. Post-graduate courses taken (specify—giving dates):

   _____ _____

   _____ _____

   _____ _____

3. A. Hospital staff meetings:

   _____ _____

   _____ _____

   B. Other medical activities, such as hospital rounds, medical papers, submitted or published, planned reading courses, book reviews, case history reports submitted for publication, community health services.

   _____ _____

   _____ _____

   _____ _____

   _____ _____

In applying for membership in the College of General Practice of Canada, I certify that I am a member of my Provincial Medical Association and the Canadian Medical Association or L'Association des Médecins de Langue Française du Canada.

I am enclosing a cheque for my fees for 12 months in the class of Active ☐ Associate ☐ membership.

Fees for active membership $30.00 for first year, then $15.00.

Fees for associate membership $10.00 per year, except for those in first or second year of practice or assistantship, when the fee shall be $5.00 per year.

Fee for interns $5.00 per year.

I understand that the money will be refunded if my application is not approved. In submitting this application, I hereby agree to abide by the Regulations of the College of General Practice of Canada.

References: Name Address

1. _____ _____

2. _____ _____

_____

Signature of Applicant

Recommended for membership—Honorary ☐ Active ☐ Associate ☐

Appointment not recommended ☐ Appointment deferred ☐

Remarks:

_____

Provincial Credentials Committee

Membership applications should be sent to:
The College of General Practice of Canada,
176 St. George Street,
Toronto 5, Ontario.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1956		1955		Total	
	May 20 to June 16,'56	Apr. 22 to May 19,'56	May 22 to June 18,'55	Apr. 24 to May 21,'55	Jan. 1 to June 16,'56	Jan. 1 to June 18,'55
Anterior Poliomyelitis	1	0	2	1	5	5
Chickenpox	149	74	93	59	577	808
Diphtheria	2	0	0	0	2	1
Diarrhoea and Enteritis, under 1 year	10	10	15	1	55	48
Diphtheria Carriers	2	0	0	0	2	2
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	1	3	1	2	9	5
Erysipelas	1	2	1	0	11	8
Encephalitis	0	0	0	0	0	0
Influenza	15	24	5	50	71	169
Measles	127	128	117	122	964	1938
Measles—German	15	25	1	4	147	56
Meningococcal Meningitis	1	0	0	0	3	11
Mumps	100	101	66	92	869	806
Ophthalmia Neonatorum	0	0	0	0	0	0
Psittacosis	1	0	0	0	1	0
Puerperal Fever	0	0	1	0	1	1
Scarlet Fever	3	21	14	6	86	108
Septic Sore Throat	0	0	3	1	4	13
Smallpox	0	0	0	0	0	0
Tetanus	2	0	0	0	2	0
Trachoma	0	0	0	0	0	0
Tuberculosis	43	63	103	71	227	342
Typhoid Fever	0	0	0	1	0	1
Typhoid Paratyphoid	0	0	0	0	1	0
Typhoid Carriers	0	0	0	0	0	0
Undulant Fever	1	1	1	0	6	5
Whooping Cough	47	42	57	53	196	400
Gonorrhoea	86	95	76	81	612	462
Syphilis	5	5	6	4	33	55
Jaundice Infectious	15	18	27	21	160	173
Tularemia	0	0	0	2	0	2

Four Week Period May 20th to June 16th, 1956

DISEASES (White Cases Only) *Approximate population.	*949,000 Manitoba	*861,000 Saskatchewan	*2,825,000 Ontario	*2,952,000 Minnesota
Actinomycosis	—	—	1	—
Poliomyelitis	1	—	5	6
Chickenpox	149	—	1436	—
Diarrhoea & Enteritis, under 1 yr.	10	2	—	—
Diphtheria	2	—	—	1
Diphtheria Carriers	2	—	—	—
Dysentery—Amoebic	—	—	—	—
Bacillary	1	—	3	4
Encephalitis, Infectious	—	—	2	—
Erysipelas	1	—	3	—
Influenza	15	—	15	5
Jaundice, Infectious	15	56	28	35
Measles	127	—	2774	240
German Measles	15	—	2976	—
Meningitis Meningococcus	1	—	4	4
Mumps	100	—	2976	—
Ophthal. Neonat.	—	—	—	—
Psittacosis	1	—	—	12
Puerperal Fever	—	—	—	—
Scarlet Fever	3	2	449	79
Septic Sore Throat	—	1	6	79
Smallpox	—	—	—	—
Tetanus	2	—	—	—
Trachoma	—	—	—	—
Tuberculosis	43	15	99	125
Tularemia	—	—	—	—
Typhoid Fever	—	—	4	1
Typh. Para-typhoid	—	1	2	—
Typhoid Carriers	—	—	—	—
Undulant Fever	1	—	7	3
Whooping Cough	47	26	31	8
Gonorrhoea	86	—	98†	—
Syphilis	5	—	29†	—

†Statistics for three weeks only.

DEATHS FROM REPORTABLE DISEASES

May, 1956

Urban—Cancer, 63; Pneumonia, Lobar (490), 5; Pneumonia (other forms), 10; Tuberculosis, 2; Diarrhoea & Enteritis, 1; Septicaemia & Pyaemia, 1; Infectious Hepatitis, 1. Other deaths under 1 year, 22. Other deaths over 1 year, 244. Stillbirths, 11. Total, 360.

Rural—Cancer, 34; Pneumonia, Lobar (490), 3; Pneumonia (other forms), 6; Tuberculosis, 1; Whooping Cough, 3. Other deaths under 1 year, 11. Other deaths over 1 year, 180. Stillbirths, 13. Total, 251.

Indians—Pneumonia (other forms), 6; Diarrhoea & Enteritis, 1. Other deaths under 1 year, 3. Other deaths over 1 year, 1. Stillbirths, 1. Total, 12.

♦

Poliomyelitis—One case occurred during this period, being reported June 12th, but had an onset date of April 14th. Slight paralysis of Pharynx occurred but the girl has since returned home with no residual paralysis.

Diphtheria—Two cases and two carriers have been reported. One of each from the City of Winnipeg and the others from rural Manitoba in Metis.

Psittacosis—This is the first case reported in Manitoba. We have been impressed by the absence of reports of Psittacosis in Canada in view of the comparative frequency of reports from the United States. The case occurred in an aviary operator after receipt of a shipment of Parrakeets from the coast. Some of which were ill shortly after arrival.

Book Reviews

Essentials of Dermatology: Norman Tobias, M.D., 5th Edition. J. B. Lippincott Co.

Norman Tobias' "Essentials of Dermatology" is a good book for the interested practitioner who wishes to enhance his knowledge about the perplexing and fascinating organ, the skin. The book is well organized and well indexed. There are thirty-three chapters. Chapter one deals with general observations regarding history taking, etiologic factors, diagnosis, etc., and also reviews the physiology, anatomy, pathology and embryology of the skin. The remaining chapters survey the whole field of dermatology, and a chapter on syphilis is included. The book contains many valuable therapeutic aids and suggestions. Topical dermatologic therapy is especially well handled.

The book does not quite satisfy the need of the specialist in Dermatology, but he may well peruse it with profit. One hesitates to recommend any text book in Dermatology to the medical student. Dermatology requires such an extensive visual acquaintance with the many manifestations of skin diseases, that it is difficult to learn anything from text books by way of diagnosis. This is, to some degree, true of all text books in medicine, but, probably more so in Dermatology.

Chapter eleven deals with skin disorders due to Psychosomatic and Nerve Disorders. It is not too well classified, and one might question the inclusion of certain dermatoses in this chapter. There is still a good deal of controversy about the role of the psyche and "nerves" as an etiologic factor in many dermatoses. The chapter on benign tumors of the skin is too brief and treatment is not too detailed. This book, however, adequately fulfills its purpose in dealing with the essentials of diagnosis, management and nursing care of diseases of the skin, and is especially recommended for the general practitioner with some knowledge of the commoner skin disorders.

S. S. B.

♦

The Exceptional Child Faces Adulthood. Proceedings of the 1955 Spring Conference of the Child Research Clinic of the Woods Schools, held in New York City, May 6th and 7th.

This conference was sponsored by the Woods Schools in collaboration with Teachers College of Columbia University and the School of Education of City College of N.Y., and included papers by such well known men as Maurice Fouracre, Salvatore DiMichael, Ernest Roselle, Herman Yannet, and James Garrett. The subject of the mentally retarded child attaining adulthood is discussed from many different points of view. The scope of the problem is surprisingly large—as much as three percent of our population is mentally retarded. The majority of these people (slightly less than 80 percent) are mildly retarded, and can be helped to fit into a "normal" way of life. The 15 percent who are moderately retarded will also profit to some extent with understanding and special help. The definition of the responsibilities of an adult (Fouracre) is most interesting: 1. to obtain and hold a job. 2. to develop good interpersonal relationships. 3. to establish and care for a family. 4. to use leisure time wisely. 5. to assume citizenship roles and responsibilities. 6. to pass on the cultural heritage and to develop a philosophy of life which is in keeping with accepted spiritual, ethical and moral standards.

This is recommended reading for all concerned with the subject, particularly in view of the controversy about municipal contributions to the education of the mentally retarded currently raging in Winnipeg.

F. J. C.

♦

In the Doctor's Office. The Art of Being a Medical Assistant. Esther Jane Parsons. Second Edition. J. B. Lippincott Company, Montreal. 326 pages.

The purpose of this book, as stated by the author in her preface, is "to show the various ways in which a Medical Assistant can best serve the patient and her employer." The Medical Assistant, be she a receptionist, a medical secretary, a nurse or a laboratory technician, will be sure to benefit from the wealth of information and advice available in this book. So, for that matter, will the Doctor, who may gain from it insight into the problems of those who assist him in his work, and whose skill and devotion often pass unappreciated and unrewarded.

The book is well indexed and nicely bound. It is an excellent guide for the Medical Assistant whose ambition is to serve the doctor well.

S. V.

Dialyzable Currents of Injury in Potassium Intoxication Resembling Acute Myocardial Infarction or Pericarditis. Harold D. Levine, M.D., Sidney H. Wanzer, M.D. and John P. Merrill, M.D.: Circulation XIII, 29 (Jan. 1956).

Three cases of acute and one of chronic renal failure associated with hyperpotassemia were studied electrocardiographically. RS-T segment elevation was found in the right precordial leads of the acute cases and the left leads of the chronic case. Recession or abolition of the segment elevations was effected acutely by dialysis. The RS-T changes may simulate acute myocardial infarction or pericarditis and the authors suggest that they may be of chemical origin even when associated with actual anatomic change.

L. J. Cera.

Children's Hospital
Winnipeg, Man.

Re: Ward Rounds and Clinical Conferences

1. Weekly Grand Round 11 - 12 a.m. Thursday mornings throughout the year.

2. Medical Staff Clinical Luncheon, the first Friday of each month (except July and August), 12.30 to 2 p.m.

3. Special Tuesday noon conferences 12 to 1,
   First Tuesday of the month, Therapeutics, (Dr. Nickerson).
   Second Tuesday, X - ray Diagnosis, (Dr. Childe).
   Third Tuesday, Cardiac Conferences, (Drs. Ferguson, Medovy, Armstrong, etc.).

All these meetings take place in the Playroom at the East end of the first floor.

The members of the Medical profession are invited to attend these Conferences and Ward Rounds.

Doctors' and Nurses' Directory
247 Balmoral Street, Winnipeg 1, Man.
24-Hour Service

Phones:
Doctors' — **SU 3-7123**
Nurses' — **72-2151**
Registered Nurses
Practical Nurses

Victorian Order of Nurses — Night calls, Sundays and Holidays
Phone **72-2008**

Dental Emergency Service
Physiotherapists and Masseuses
P. BROWNELL, Reg. N., Director

General Practitioner Wanted

Young general practitioner wanted for busy general practise in Manitoba. Knowledge of French desirable. Please write stating age, marital status and religion, to Box 801, Manitoba Medical Review.

Physician Required

A qualified Medical Practician is required for Newdale Medical Care District. For particulars of contract, salary, etc., apply to Messrs. Ferguson and Burgess, Barristers, Minnedosa, Manitoba.

THE UNIVERSITY OF MANITOBA
POST GRADUATE COURSES
IN ANAESTHESIA
AND SURGERY

The Departments of Surgery and Anaesthesia of the University of Manitoba offer four year courses for those wishing to obtain post-graduate education in preparation for the Fellowship examinations.

The courses consist of a series of graded resident appointments at the following teaching hospitals:

The Winnipeg General Hospital
St. Boniface Hospital
The Children's Hospital
Deer Lodge (D.V.A.) Hospital

One of the four years of the course is to be spent either in research, in a related science, or for travel.

A series of evening supplemental lectures and seminars is given weekly throughout each academic year.

Fees: $25.00 per annum.
Commencement of Course: July 1st, 1957.
Final Date for Submission of Applications: November 15th, 1956.

For application forms or further information, address:
DEPARTMENT OF SURGERY
or
DEPARTMENT OF ANAESTHESIA
UNIVERSITY OF MANITOBA
Medical Buildings, Emily and Banatyne Streets
WINNIPEG, MANITOBA

Accuracy . . .

The technique of craftsmanship as we apply it to your prescription, is a guarantee of accuracy.

Mallon Optical **405 Graham Ave., Winnipeg 1** **Phone 92-7118**

Detailmen's Directory

Representing Review Advertisers in this issue, whose names are not listed under a business address.

Abbott Laboratories
G. J. Bowen — 4-4559
R. G. (Bud) Harman — 50-7509
Alan (Al) M. Grant — 23-1802
Bruce Hunter — 42-5263

Ayerst, McKenna and Harrison
W. R. Card — 40-7115
C. G. Savage — SU3-4558
Jack R. Ostrow — ED 4-3240

British Drug Houses
F. J. Burke — 43-1753
W. B. Pipes — 42-2023
W. S. Langdon — 43-1325

Carnation Company Ltd.,
Dan Wright — ED 1-3515
Den Bryant — 6-2068
Tod Thurston — SU 3-9370

Ciba Company Ltd.
Leslie D. MacLean — 23-3240
Ralph L. Whitfield — 43-0163

Connaught Laboratories
Brathwaites Ltd. — 92-2635

Frosst, Chas. E.
W. M. Lougheed — 40-3963
W. J. McGurran — 20-8231
E. R. Mitchell — 40-6164

Horner, Frank W. Limited
Richard Briggs — 43-0431
Jos. Lavitt — 59-1691
Linc. Sveinson — 43-0072

Hoffman-La Roche Ltd.
Theodore (Ted) Gzebb — 59-5990

Lederle Laboratories
E. A. Gorick — SP 5-5359
T. E. Prendergast — 40-7851
R. T. Roberts — SU3-5804

Mead Johnson
Robert Henderson — 42-6947

Merrell Co., The Wm. S.
F. G. Granger — VE 2-2811

Ortho Pharmaceutical Corp.
G. H. Hofer — 42-3000

Park, Davis & Co.
L. W. Curry — 40-1138
B. S. Fleury — 40-4441

Pfizer Canada
E. E. Conway — 6-6002
Paul Thurston — ED1-1834

Poulenc Limited
W. J. Plumpton — 4-5561

A. H. Robins (Canada) Ltd.
Norman Haldane — VE 2-3909
Harold Tetlock — 50-8386

Sandoz Pharmaceuticals Ltd.
H. D. Robins — 6-2825

G. D. Searle & Co.
Harry Chambers — 50-6558

Smith, Kline and French Inter-American Corp.
Boyd C. Affleck — VE 2-1237

Shuttleworth, E. B.
A. E. (Bert) Pauwels — 93-1652

Squibb & Son, E. R.
J. H. Don MacArthur — 40-4741
M. G. Waddell — 4-1552

Sharp & Dohme (Canada) Ltd.
W. G. Ball — 4-5702
Noel J. Pritchard — 40-1162
E. J. Strimbicki — SP 4-0302

Warner-Chilcott Labs.
A. L. (Andy) Argue — 6-1619

Will, Chas. R.
A. C. Payne — VE 2-2055

Winthrop Laboratories
R. M. Kelly — 40-6459
Russell B. Ferguson — 4-9437

Wyeth & Bro., John
A. W. Cumming — 40-5694
Stuart Holmes — 59-4273